

Final

Focused Preliminary Assessment/ Site Inspection Camp Johnson MILCON Area and Military Munitions Response Program UXO-20

Marine Corps Base Camp Lejeune Jacksonville, North Carolina



Prepared for

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Naval Facilities Engineering Command Mid-Atlantic

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Prepared by

CH2MHILL.

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Contract Task Order 011
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Department of the Navy
Naval Facilities Engineering Command
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Under the

NAVFAC CLEAN 1000 Program Contract N62470-08-D-1000

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Executive Summary

This Preliminary Assessment/Site Inspection (PA/SI) presents data, results, and conclusions of the investigations conducted at the Camp Johnson Construction Area (CJCA), Marine Corps Base Camp Lejeune (MCB CamLej), North Carolina. The CJCA includes:

- Military Munitions Response Program (MMRP) UXO-20 (Former 1,000-inch Range [ASR #2.32] and Former A-1 50-foot .22 Caliber Range [ASR #2.87]);
- Solid Waste Management Unit (SWMU) 46/Installation Restoration (IR) Site 15-Former Montford Point Burn Dump;
- SWMU 47/IR Site 17-Montford Point Area Rip Rap; and
- SWMU 241/IR Site 85-Former Camp Johnson Battery Dump.

The scope of the work was provided by Naval Facilities Engineering Command (NAVFAC) – Mid Atlantic Division, NAVFAC CLEAN 1000 Program Contract N62470-08-D-1000. Field investigation activities were conducted in accordance with the *Site-Specific Work Plan Addendum for Focused Preliminary Assessment/Site Inspection – Camp Johnson MILCON Area, Marine Corps Base Camp Lejeune, North Carolina* (CH2M HILL, 2009). The Work Plan was approved by NAVFAC, MCB CamLej, the U.S. Environmental Protection Agency (EPA), and the North Carolina Department of Environment and Natural Resources (NCDENR).

MCB CamLej is planning a military construction (MILCON) project within the CJCA. This focused PA/SI was conducted to identify and characterize potential environmental impacts associated with the use of UXO-20 and the SWMU/IR sites, evaluate the potential risks to human health and the environment posed by historical land use practices, and evaluate whether additional investigation and/or remediation activities are necessary.

Field activities included land surveying, vegetation clearing, buried utility locating, environmental sampling, and excavation of test trenches. Environmental sampling activities consisted of the collection of surface soil, subsurface soil, groundwater, and discarded batteries for laboratory analysis. Soil concentrations were compared to North Carolina Soil Screening Levels (NCSSLs) (NCDENR, 2010), EPA Industrial and Residential Soil Adjusted Regional Screening Levels (RSLs) (EPA, 2010), and twice the mean Base background concentrations (Base background) for inorganic constituents (Baker, 2001). Groundwater samples were compared to North Carolina Groundwater Quality Standards (NCGWQS) (NCDENR, 2010), EPA Tap Water RSLs (EPA, 2010), EPA's maximum contaminant levels (MCLs) (EPA, 2009b), and twice the Base background for inorganic constituents (Baker, 2001). A summary of the results from these investigation activities is provided below.

UXO-20

Two-hundred fourteen surface soil samples, 77 subsurface soil samples, and 37 groundwater samples were collected from UXO-20 for analysis of select metals (antimony, arsenic, copper, lead, and zinc).

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Surface and Subsurface Soil

Arsenic was the most prevalent metal detected in surface and subsurface soils across UXO-20, with concentrations exceeding regulatory criteria and twice the Base background. No other analyzed metals were detected at concentrations exceeding both twice the Base background and regulatory screening criteria.

Groundwater

Two metals, arsenic and lead, were detected at concentrations exceeding regulatory screening criteria and twice the Base background in groundwater samples collected at UXO-20.

IR Site 15

Ten surface soil samples, ten subsurface soil samples, and five groundwater samples were collected from IR Site 15. The samples were analyzed for volatile organic compounds (VOCs), semi-VOCs (SVOCs), polychlorinated byphenols (PCBs), organochlorine pesticides (OCPs), target analyte list (TAL) metals, and dissolved TAL metals (groundwater only).

Surface Soil

VOCs or SVOCs were not detected at concentrations exceeding regulatory criteria in surface soil samples collected at IR 15. One PCB, arochlor-1254, was detected above regulatory criteria at one surface soil sample location. One pesticide, dieldrin, was detected above regulatory criteria at two surface soil sample locations. Four metals were detected at concentrations exceeding regulatory criteria and twice the Base background in surface soil samples at IR 15, including aluminum, arsenic, chromium, and iron.

Subsurface Soil

VOCs, SVOCs, or PCBs were not detected at concentrations exceeding regulatory criteria in subsurface soil samples collected at Site 15. One pesticide, dieldrin, was detected above regulatory criteria at one subsurface soil sample location. Five metals were detected at concentrations exceeding regulatory criteria and twice the Base background in subsurface soil samples, including arsenic, chromium, iron, lead, and manganese.

Groundwater

VOCs, SVOCs, OCPs, or PCBs were not detected at concentrations exceeding regulatory criteria in groundwater samples collected at Site 15. Three metals were detected at concentrations exceeding both twice the Base background and regulatory criteria in groundwater samples, including, chromium, iron, and manganese. Two dissolved metals, iron and manganese, were detected at concentrations exceeding regulatory criteria and twice the Base background.

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IR Site 17

Five surface soil samples, five subsurface soil samples, and two groundwater samples were collected from IR Site 17. The samples were analyzed for VOCs, SVOCs, PCBs, OCPs, TAL metals, and dissolved TAL metals (groundwater only).

Surface Soil

VOCs, SVOCs, OCPs, or PCBs were not detected at concentrations exceeding regulatory criteria in surface soil samples collected at Site 17. Three metals (arsenic, chromium, and iron) were detected at concentrations exceeding regulatory criteria and twice the Base background in surface soil samples.

Subsurface Soil

One VOC, 1,2-dibromo-3-chloropropane, was detected above regulatory criteria in one subsurface soil sample at Site 17. SVOCs, pesticides, or PCBs were not detected above regulatory criteria in the subsurface soil samples. Four metals were detected at concentrations exceeding regulatory criteria and twice the Base background in subsurface soil samples, including aluminum, arsenic, chromium, and iron.

Groundwater

Chloroform was detected at a concentration exceeding regulatory criteria in one groundwater sample collected at Site 17. SVOCs, OCPs, or PCBs were not detected in the groundwater samples at concentrations exceeding regulatory criteria. Metals and dissolved metals were not detected in the groundwater samples at concentrations exceeding regulatory criteria and twice the Base background.

IR Site 85

Thirteen surface soil samples, 12 subsurface soil samples, and nine groundwater samples were collected from IR Site 85. The samples were analyzed for VOCs, SVOCs, PCBs, OCPs, the TAL metals and dissolved TAL metals (groundwater only). A representative sample of the discarded batteries observed at IR Site 85 was collected and analyzed for TAL metals.

Surface Soil

VOCs, SVOCs, or PCBs were not detected at concentrations exceeding regulatory criteria in surface soil samples collected at Site 85. Dieldrin was detected above regulatory criteria at two surface soil sample locations. Eleven metals were detected at concentrations exceeding regulatory criteria and twice the Base background in surface soil samples at IR Site 85, including antimony, arsenic, cadmium, chromium, cobalt, iron, lead, manganese, mercury, thallium, and zinc.

Subsurface Soil

One VOC, 1,2-dibromo-3-chloropropane, was detected above regulatory criteria in one subsurface soil sample location at Site 85. SVOCs, pesticides, or PCBs were not detected above regulatory criteria in the subsurface soil samples. Two metals, aluminum and arsenic, were detected at concentrations exceeding regulatory criteria and Base background in subsurface soil samples.

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Groundwater

Methylene chloride was detected in two groundwater samples collected at IR 85. SVOCs, OCPs, or PCBs were not detected in the groundwater samples at concentrations exceeding regulatory criteria. Three metals were detected in the groundwater samples at concentrations exceeding regulatory criteria and Base background in the groundwater samples, including, aluminum, iron, and chromium. One dissolved metal, iron, was detected in the groundwater samples at concentrations exceeding regulatory criteria and twice the Base background.

Discarded Batteries

Eleven metals were detected in the battery sample collected from IR Site 85. Of these, lead and mercury were detected at concentrations exceeding the EPA maximum toxicity characteristic. Therefore, upon removal, the batteries were treated as hazardous waste.

Human Health and Ecological Risk Screening

A preliminary human health risk screening (HHRS) and ecological risk screening (ERS) were performed to evaluate potential pathways and associated risks to human health and ecological receptors from exposure to soil and groundwater at the CJCA. A brief summary of the HHRS and ERS findings is presented below by assessment area.

UXO-20

Based on the analytical data for surface soil, subsurface soil, and groundwater samples collected from UXO-20, constituents detected do not present any unacceptable risks to human health or populations of ecological receptors.

IR Site 15

Based on the analytical data for surface and subsurface soil samples collected at Site 15, detected constituents do not present an unacceptable risk to human health. However, chromium was identified as a constituent of potential concern (COPC) in groundwater. Exposure to groundwater at Site 15 may present an unacceptable risk to human health and further assessment is recommended.

Based on the analytical data collected from Site 15, exposure to PCBs and metals in surface soil and pesticides and metals in subsurface soils present potentially unacceptable risks to ecological receptors. Further assessment is recommended. No unacceptable risks to ecological receptors were identified in groundwater at Site 15.

IR Site 17

Based on the analytical data for surface soil, subsurface soil, and groundwater samples collected from Site 17, constituents detected do not present any unacceptable risks to human health or populations of ecological receptors.

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IR Site 85

Based on the analytical data collected at Site 85, exposure to groundwater may present an unacceptable risk to human health due to chromium, based on the screening value for hexavalent chromium. Further assessment of groundwater is recommended. Unacceptable human health risks were not identified for surface and subsurface soils.

Based on surface soil samples collected at Site 85, exposure to metals presents a potentially unacceptable risk to ecological receptors and further assessment is recommended. Unacceptable risks to populations of ecological receptors were not identified for subsurface soil and groundwater.

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Acronyms and Abbreviations

μg/kg micrograms per kilogram μg/L micrograms per liter

amsl above mean sea level ASR archive search report

Baker Environmental, Inc.

CERCLA Comprehensive Environmental Response, Compensation, and

Liability Act

CJCA Camp Johnson Construction Area

CLEAN Comprehensive Long-Term Environmental Action Navy

COC chain-of-custody

COPCs constituents/chemicals of potential concern

CSF cancer slope factor

CSI Comprehensive Site Investigation

CSM conceptual site model

DDD dichlorodiphenyldichloroethane DDE dichlorodiphenyldichloroethylene DDT dichlorodiphenyltrichloroethane

DPT direct-push technology

ERS ecological risk screening ESV ecological screening value

FFA federal facilities agreement FID flame-ionization detector ft bgs feet below ground surface

HHRA human health risk assessment HHRS human health risk screening

HI hazards index HQ hazard quotient

IDW investigation-derived waste

IEUBK Integrated Exposure Uptake Biokinetic

IR Installation Restoration

IRIS Integrated Risk Information System

m meter

MCB CamLej Marine Corps Base Camp Lejeune

MCCSS Marine Corps combat service support school

MCL maximum contaminant level mg/kg milligrams per kilogram MILCON military construction

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NAVFAC Naval Facilities Engineering Command

Navy Department of the Navy

NCDENR North Carolina Department of Environment and Natural Resources

NCGWQS North Carolina Groundwater Quality Standards

NC SSL North Carolina Soil Screening Limit

NFA no further action

NRWQC national recommended water quality criterion

NTCRA non-time-critical removal action

OCP organochlorine pesticide

PAH polycyclic aromatic hydrocarbon

PA/SI Preliminary Assessment/Site Inspection

PCB polychlorinated biphenyl
Pre-RI Pre-Remedial Investigation
PRG preliminary remediation goals

QA/QC quality assurance/quality control

RCRA Resource Conservation and Recovery Act

RFA RCRA Facility Assessment RFI RCRA Facility Investigation RSL regional screening level

SI Site Investigation

SOP standard operating procedure

SSL soil screening level

SVOC semi-volatile organic compound SWMU Solid Waste Management Unit

TAL target analyte list TCL target compound list

UCL upper confidence limit

USACE U.S. Army Corps of Engineers

UXO Unexploded Ordnance

VOC volatile organic compound

XRF x-ray fluorescence

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Introduction

Marine Corps Base Camp Lejeune (MCB CamLej) is planning a military construction (MILCON) project covering approximately 240 acres within the Camp Johnson Construction Area (CJCA), identified on **Figure 1-1**. Due to the various historical land uses within the CJCA, it was necessary to evaluate the presence of potential impacted environmental media. This document presents the findings of a Focused Preliminary Assessment/Site Inspection (PA/SI) conducted within the CJCA, MCB CamLej, North Carolina.

The Focused PA/SI specifically addressed 4 areas of historical land use or waste disposal within the CJCA, including:

- Military Munitions Response Program Site Unexploded Ordnance (UXO)-20 (Former 1,000-inch Range and Former A-1 50-foot .22 Caliber Range)
- Solid Waste Management Unit (SWMU) 46/Installation Restoration (IR) Site 15-Former Montford Point Burn Dump
- SWMU 47/IR Site 17-Montford Point Area Rip Rap
- SWMU 241/IR Site 85-Former Camp Johnson Battery Dump

This Focused PA/SI was conducted by CH2M HILL under the Naval Facilities Engineering Command Mid-Atlantic (NAVFAC) Comprehensive Long-Term Environmental Action Navy (CLEAN) 1000 Contract N62470-08-D-1000, Task Order 11 in accordance with the *Sitespecific Work Plan Addendum for Focused Preliminary Assessment/Site Inspection—Camp Johnson MILCON Area, Marine Corps Base Camp Lejeune, North Carolina* (CH2M HILL, 2009). This report is for submittal to NAVFAC Mid-Atlantic, MCB CamLej, the U.S. Environmental Protection Agency (EPA), and the North Carolina Department of Environment and Natural Resources (NCDENR).

1.1 Objectives and Approach

The overall objective of this Focused PA/SI is to evaluate the potential presence and nature of environmental impacts within the boundaries of the CJCA and to evaluate whether the area is fit for MILCON.

Specifically, the objectives of the CJCA Focused PA/SI for each assessment area are listed below:

- UXO-20 Former 1,000-inch range (archive search report [ASR] #2.32) and Former A-1 50-foot .22 caliber range (ASR #2.87) — to assess the potential for soil and groundwater contamination resulting from the former range activities
- SWMU 46/IR Site 15 Former Montford Point Burn Dump to assess the nature and extent of potential soil and groundwater contamination and address data gaps from previous investigation activities

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- SWMU 47/IR Site 17 Montford Point Area Rip-Rap to assess the potential for soil and groundwater contamination resulting from historical disposal activities
- SWMU241/IR Site 85 Former Camp Johnson Battery Dump to assess the nature and extent of potential soil and groundwater contamination and address data gaps from previous investigation activities

The specific tasks completed to meet the stated objectives included:

- Identifying historical activities conducted within the CJCA that may have resulted in environmental impacts
- Collection of surface soil, subsurface soil, and groundwater samples from locations within UXO-20 and Sites 15, 17, and 85 for laboratory analysis
- Excavation of test pits at Sites 15 and 85
- Removal of discarded batteries from Site 85 for laboratory analysis and disposal
- Ecological and human health risk screenings using analytical data from various media collected from UXO-20 and Sites 15, 17, and 85.

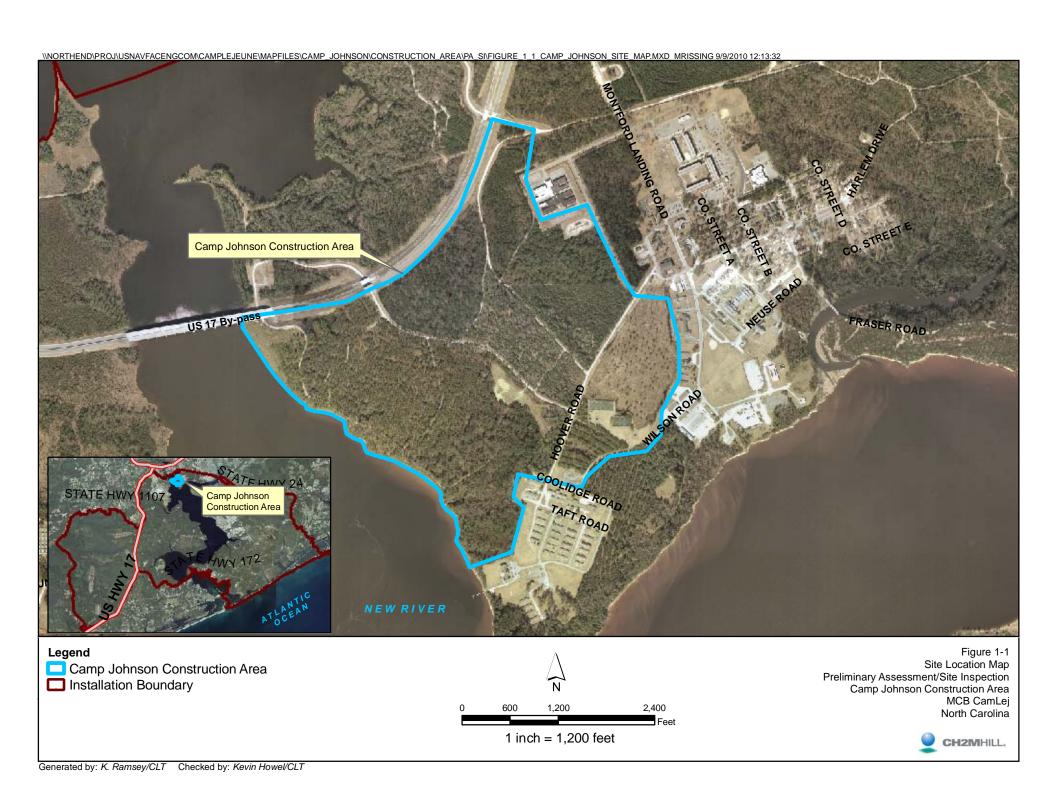
1.2 Report Organization

This Focused PA/SI report contains the following sections:

- Section 1 Introduction
- Section 2 Site Background
- Section 3 Physical Setting and Regional Hydrogeology
- Section 4 Field Investigation Activities
- Section 5 Field Investigation Results
- Section 6 Human Health Risk Assessment
- Section 7 Ecological Risk Assessment
- Section 8 Conclusions
- Section 9 References

Figures and tables are provided at the end of each respective section and appendices are provided at the end of Section 9.

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Site Background

2.1 MCB CamLej Setting and History

MCB CamLej encompasses approximately 244 square miles of land in Onslow County, North Carolina, adjacent to the southern boundary of the city of Jacksonville. Jacksonville is the largest city near MCB CamLej and contains approximately half of the county's total population. Since 1990, much of the MCB CamLej complex has been part of Jacksonville.

MCB CamLej is bordered by the Atlantic Ocean to the east, U.S. Route 17 to the west and State Route 24 to the north. It is bisected by the New River, which flows into the Atlantic Ocean in a southeasterly direction. The MCB CamLej complex consists of multiple geographical locations under the jurisdiction of the Base command. These areas include Camp Geiger, Camp Johnson, Courthouse Bay, Stone Bay, Mainside, the Greater Sandy Run Area, and the Rifle Range Area.

MCB CamLej was placed on the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) National Priorities List effective 4 November 1989. Subsequent to this listing, EPA Region IV, NCDENR, the United States Department of the Navy (Navy), and the Marine Corps entered into a Federal Facilities Agreement (FFA) for Camp Lejeune. The primary purpose of the FFA was to ensure that environmental impacts associated with past and present activities at the Base are thoroughly investigated and that appropriate CERCLA response and Resource Conservation and Recovery Act (RCRA) corrective action alternatives are developed and implemented, as necessary, to protect public health and welfare and the environment.

2.2 Site Description and History

2.2.1 Site Description

The CJCA encompasses approximately 240 acres within Camp Johnson as shown on **Figure 2-1**. The CJCA is located on Hoover Road and is bounded by U.S. Highway 17 bypass to the north, the New River to the west, Montford Landing Road to the east, and Harding Road to the south.

Approximately 75 acres of the CJCA consists of the following former small arms ranges and firing points:

- Former 1,000-inch range (ASR #2.32)
- Former A-1 50-foot .22 caliber range (ASR #2.87), which appears as three separate range fans and firing points

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Additionally, the CJCA also encompasses all or portions of the following former IR sites:

- SWMU 46/IR Site 15-Former Montford Point Burn Dump
- SWMU 47/IR Site 17-Montford Point Area Rip-Rap
- SWMU 241/IR Site 85-Former Camp Johnson Battery Dump

2.2.2 Site History

In October 2008, CH2M HILL completed a detailed historical review of information related to past uses of the CJCA. Information obtained from this review is presented in the Archival Records Search Report in **Appendix A**. Camp Johnson, formerly named Montford Point Camp, was the original training center for African-American Marines. Between 1941 and 1949 approximately 20,000 African-American Marines were trained at Montford Point. In 1949, the military was fully integrated and the area continued to be used for schools and training. Montford Point Camp was renamed Camp Johnson in 1974, and currently houses the Marine Corps Combat Service Support Schools (MCCSSS), which serve as training facilities for various duties within the Marine Corps. The MCCSSS consist of four military occupation skills schools, four tenant schools, and the Navy's Field Medical School. Approximately 10,000 students per year are trained at Camp Johnson.

1,000-inch Range (ASR #2.32)

The 1,000-inch Range at Camp Johnson operated from 1940 until the mid 1950s (**Figure 2-1**). Camp Training Order Number 5-1946 identified this range as a Familiarization Range for .30 caliber Browning automatic rifle and interviews with base personnel indicate the range was used for small arms (rifles from the M1 up to the Browning automatic rifle) (Richardson, 2008). Reference to the 1,000-inch Range was noted on the 1946 range overlay map (U.S. Army Corps of Engineers [USACE], 2001), which indicated the location of the firing position and direction of fire, but did not specify the range fan.

A-1 50-foot .22 Range (ASR #2.87)

The former A-1 50-foot .22 Caliber Range appears on three range overlay maps (1951, 1953, and 1954) in varying shapes and locations (**Figure 2-1**). The range was reportedly used as a small arms firing range during the 1950s and is believed to have been inactive since 1957 (USACE, 2001). Although the name of the range suggests that .22-caliber weapons were used, the available documentation does not specify the type of small arms used on the range.

IR Site 15

IR Site 15 (Site 15), formerly known as SWMU 46, is the former Montford Point Burn Dump (**Figure 2-1**). The site operated between 1946 and 1958 and was reportedly used to dispose sewage treatment sludge, litter, asphalt, and sand (CH2M HILL/ Baker Environmental, Inc. [Baker], 2005a). Site 15 currently consists of an open area surrounded by vegetation, and encompasses approximately 24 acres. However, historical investigations indicate that the former disposal area covered only roughly 2 acres in the eastern portion of the site.

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IR Site 17

IR Site 17 (Site 17) encompasses approximately 5 acres along the eastern shoreline of the New River and is covered by vegetation and concrete rip rap (**Figure 2-1**). Limited historical information is available for the site, which was originally evaluated during the Initial Assessment Study (WAR, 1983). Based on the results of that study, Site 17 was not considered for further investigation and no intrusive environmental investigations have historically been conducted at the site.

IR Site 85

IR Site 85 (Site 85), the Former Camp Johnson Battery Dump, encompasses approximately 4.5 acres in the Camp Johnson support operations area of the Base (**Figure 2-1**) and was used as a battery dump during the 1950s. In 1992, decomposed batteries used in military communication equipment during the Korean War era were unearthed as a roadway was being widened. Military personnel using this area also discovered discarded charcoal canisters from air purifying respirators. The discarded battery packs and charcoal canisters were observed in piles randomly located throughout a 2 to 3-acre area. Investigations at Site 85 identified 16 battery piles across the site that ranged in size from 7 to 30 feet in diameter with heights of 1 to 3 feet.

2.3 Previous Investigations

2.3.1 IR Site 15

RCRA Facility Assessment

In January 1989, EPA Region IV and NCDENR conducted initial RCRA Facility Assessments (RFAs) of 76 SWMUs at MCB CamLej. SWMU 46 was identified as a site that required confirmatory sampling (Environmental Safety and Design, 1996).

Confirmatory Site Investigations

In 1997, Baker conducted a Phase I Confirmatory Site Investigation (CSI) (Baker, 2001) to evaluate whether material disposed of at the site during landfill operations or in the recent past had impacted surface and subsurface soils. Surface and subsurface soil samples were collected and analyzed for semi-volatile organic compounds (SVOCs) and RCRA metals. The analytical data indicated that the concentration of arsenic detected in a subsurface soil sample collected from SWMU46-ISO3 exceeded the NCDENR soil screening limits (SSLs), EPA Region IX preliminary remediation goals (PRGs) for residential land use, and Base background criteria. Additionally, the concentrations of cadmium and lead detected in a subsurface soil sample collected from SWMU46-ISO2 exceeded NCDENR SSLs, EPA residential PRGs, and Base background criteria (Figure 2-2). Based on these results, additional assessment was recommended.

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In 2002, Baker conducted a Phase II CSI (Baker, 2002) to assess soil and groundwater impacts and to evaluate the horizontal and vertical extent of buried waste. Baker collected surface soil, subsurface soil, and groundwater samples from 6 locations. The concentration of mercury detected in the surface soil sample collected from SWMU46-TW01 exceeded NCDENR soil to groundwater screening criteria, EPA residential PRGs, and Base background criteria. Additionally, concentrations of chromium, lead, and silver detected in the surface soil sample collected from SWMU46-TW04 exceeded NCDENR soil to groundwater screening criteria, EPA residential PRGs, and Base background criteria.

The concentration of lead detected in the groundwater sample collected from SWMU46-TW06 exceeded the North Carolina Groundwater Quality Standard (NCGWQS). However, water quality monitoring conducted during the collection of this sample indicated the presence of very high turbidity (999 nephelometric turbidity units). No other metals were detected in the groundwater samples at concentrations exceeding the NCGWQS.

The Phase II CSI (Baker, 2002) also included a geophysical survey to assess the approximate extent of buried debris. **Figure 2-2** illustrates the distribution of electromagnetic anomalies within the boundary of the geophysical survey area, and shows the presence of a large continuous anomaly surrounded by smaller irregular anomalies.

RCRA Facility Investigation

In 2004, Baker conducted a RCRA Facility Investigation (RFI) to further characterize SWMU 46 and necessity for future corrective action based on risks to human health and the environment (CH2M HILL/Baker, 2005a). Assessment activities included a supplemental geophysical survey, excavation of test trenches, collection of soil samples from the test trenches, collection of surface and subsurface soil samples, and the installation and sampling of one permanent monitoring well.

The additional geophysical survey was performed to assess the boundary of the buried waste. In order to truth the geophysical survey, several test trenches were advanced near the predicted horizontal limits of the buried waste (**Figure 2-2**). Potential landfill material such as glass, metal debris (car parts, bedsprings, cable, and conduit), ceramic, ash, and other burned debris were encountered in the test trenches. Confirmatory soil samples were collected from each test trench at depths ranging from 3 to 7 feet bgs.

Based on the analytical data, elevated concentrations of metals were detected in surface soil samples, particularly in soil mounds located in the southeast portion of the site. Additionally, elevated concentrations of metals, SVOCs, and pesticides were detected in subsurface soil samples collected from the test trenches (Figure 2-2). Specifically, concentrations of several pesticides, including 4,4-dichlorodiphenyldichloroethane (4,4-DDD), 4,4-dichlorodiphenyltrichloroethane (4,4-DDT), alpha-chlordane, and gamma-chlordane exceeded North Carolina soil to groundwater screening levels and EPA industrial PRGs. The pesticide concentrations detected in the test trench samples were collected from soils both in contact with the debris as well as adjacent to the debris; however, the highest concentrations were detected in soils collected from within the debris. Because the pesticides were detected in soils in contact with the debris as wells as native soil, it is unclear if the concentrations are attributed to past disposal activities.

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In order to confirm the previous detections of lead in the groundwater sample collected from temporary monitoring well SWMU46-TW06 during the CSI, a permanent monitoring well (SWMU46-MW01) was installed in approximately the same location as SMWU46-TW06. Laboratory analysis of a groundwater sample collected from SWMU46-MW01 did not detect COCs in excess of applicable criteria. Consequently, no further assessment of groundwater quality was performed.

A human health risk assessment (HHRA) indicated that an unacceptable hazard level was present for future construction workers due to exposure to chromium in surface and subsurface soil. In addition, the HHRA identified an elevated risk to future child residents due to exposure to chromium in soil and groundwater. It should be noted, however, that the concentration for chromium in groundwater used to calculate the risk was collected from a temporary monitoring well that exhibited high turbidity during sample collection. A high sediment content in the groundwater sample may bias the concentration higher as a result of metals adsorbing onto the sediment grains. No other risks were identified in the HHRA. An ecological risk assessment conducted for the RFI concluded that terrestrial receptors may be at risk due to exposure to metals in surface soils.

Additional Assessment Activities

In 2006, CH2M HILL conducted additional soil assessment activities in support of an Interim Remedial Measures (IRM) removal action to remove impacted soil mounds and surface soils identified in the RFI (CH2M HILL, 2006). The investigation activities included the collection of soil samples from soil mounds and surface soil. These samples were analyzed for volatile organic compounds (VOCs), SVOCs, pesticides, polychlorinated biphenyls (PCBs), and RCRA metals. VOCs, SVOCs, and PCBs were either not detected or the concentrations were below the screening levels. Surface soils containing pesticides and metals that were identified for removal included SWMU46-SS01, SWMU46-SS02, and SWMU46-SS04. The soil mounds surrounding soil samples SWMU46-SM04, SWMU-SM06, and SWMU46-SM07 were identified for removal as shown in Figure 2-2.

Removal Action

The IRM removal action was completed in March 2007, and included excavation of the soil mounds and surface soil areas to a depth of 1 ft bgs (Shaw, 2007). A total of 1,039 tons of soil were removed from the site and disposed at the MCB CamLej landfill. Confirmatory soil samples were collected from the excavated material and the results indicated that one composite soil sample (SWMU46-0005) was reported to contain a concentration of mercury (0.14 milligram per kilogram [mg/kg]) greater than the NC SSL (0.015 mg/kg); however, the concentration was only slightly greater than the Base background concentration (0.12 mg/kg), and no additional excavation was conducted. On December 28, 2007, following completion of the removal action, SWMU 46 was transferred to the Installation Restoration Program as Site 15.

2.3.2 IR Site 17

No previous intrusive investigations have been conducted at Site 17.

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2.3.3 IR Site 85

Pre-Remedial Investigation

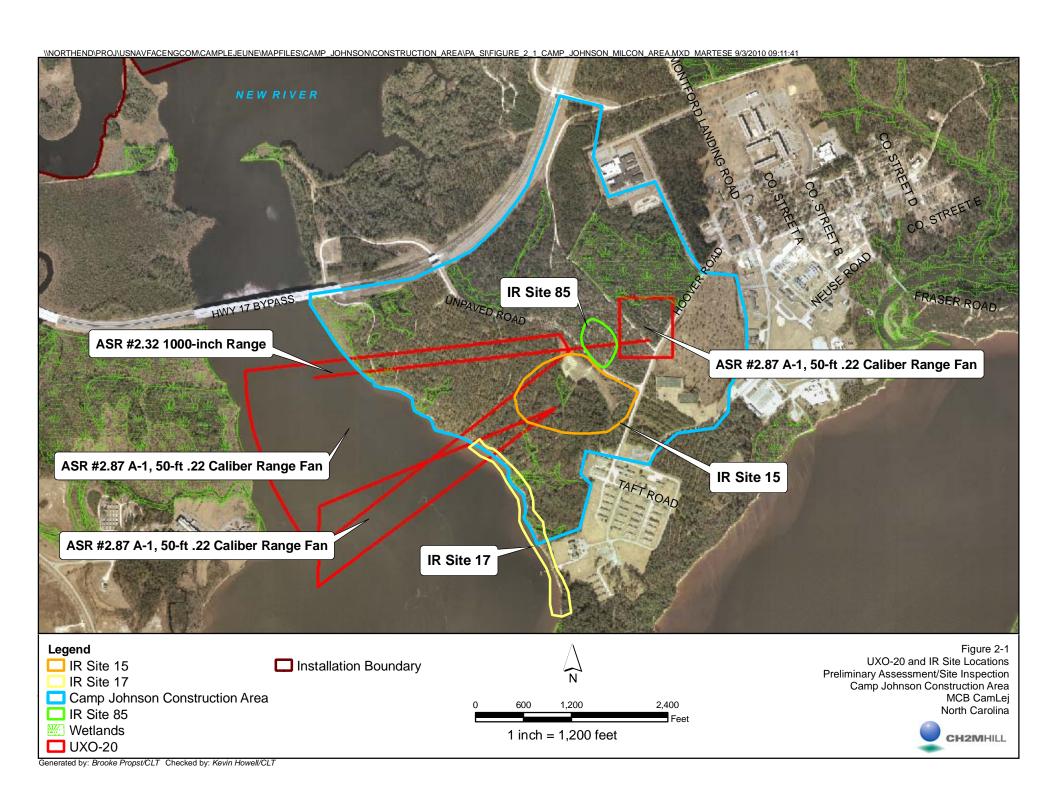
A Pre-Remedial Investigation (Pre-RI) screening study was conducted at Site 85 from 1995 to 1998 and included the collection of soil and groundwater samples for laboratory analysis of metals (Baker, 1998). Analytical data indicated the presence of elevated metals concentrations in surface and subsurface soils near the battery disposal piles (**Figure 2-3**). Metals were detected in all of the surface soil samples; however, only the sample collected from 85-SB02 exhibited concentrations that exceeded the NCDENR soil to groundwater screening levels and the EPA risk-based concentrations (RBCs) for residential soils. Metals were reportedly not detected at concentrations greater than the regulatory screening levels in the subsurface soil samples; however, concentrations of metals that exceeded twice the Base background level were detected in three subsurface soil samples (85-SB01, 85-SB02, and 85-SB03). Groundwater analytical data indicates concentrations of metals exceeded the regulatory screening levels that were in effect at the time of the investigation (**Figure 2-3**).

A baseline Risk assessment, completed as part of the Pre-RI, identified potential risks to current military personnel due to exposure to metals in surface soil. Potential risks due to exposure to surface soil and groundwater were also identified for future child and adult residents. As a result of the findings in the Pre-RI, it was recommended that an Engineering Evaluation/Cost Analysis (EE/CA) be completed to evaluate remedial alternatives for soil contamination at the site.

Non-time-critical Removal Action

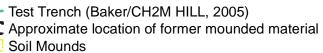
The EE/CA (Baker, 1999) recommended removal of the soil and batteries through a non-time-critical removal action (NTCRA) followed by re-evaluation of site groundwater. The NTCRA was completed from October to December 1999, and included the excavation and removal of 158 tons of soil and debris from the 16 separate battery pile locations shown on **Figure 2-3** (OHM, 2000). Confirmatory soil samples were collected beneath each battery pile following excavation to confirm that the cleanup goals (EPA Region III Industrial Soil RBCs) were achieved. Following the NTCRA, five permanent groundwater monitoring wells were installed in the vicinity of the battery pile removal areas to monitor metals in the shallow groundwater. Five groundwater monitoring events were conducted from July 2001 through July 2002 and the results indicated that concentrations of metal were not detected above regulatory criteria. Consequently, the site was granted No Further Action (NFA) status in May 2005.

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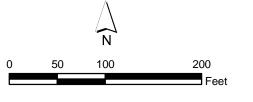


- Phase II CSI Surface/Subsurface Soil/Groundwater Sample (Baker 2002)
- RFI Monitoring Well (Baker/CH2M HILL 2005)
- RFI Soil Boring (Baker/CH2M HILL 2005)
- NTCRA Soil Mound Sample Location (CH2M HILL, 2006)
- NTCRA Surface Soil Sample Location (CH2M HILL 2006)



Approximate Electromagnetic Geophysical Anomaly Area

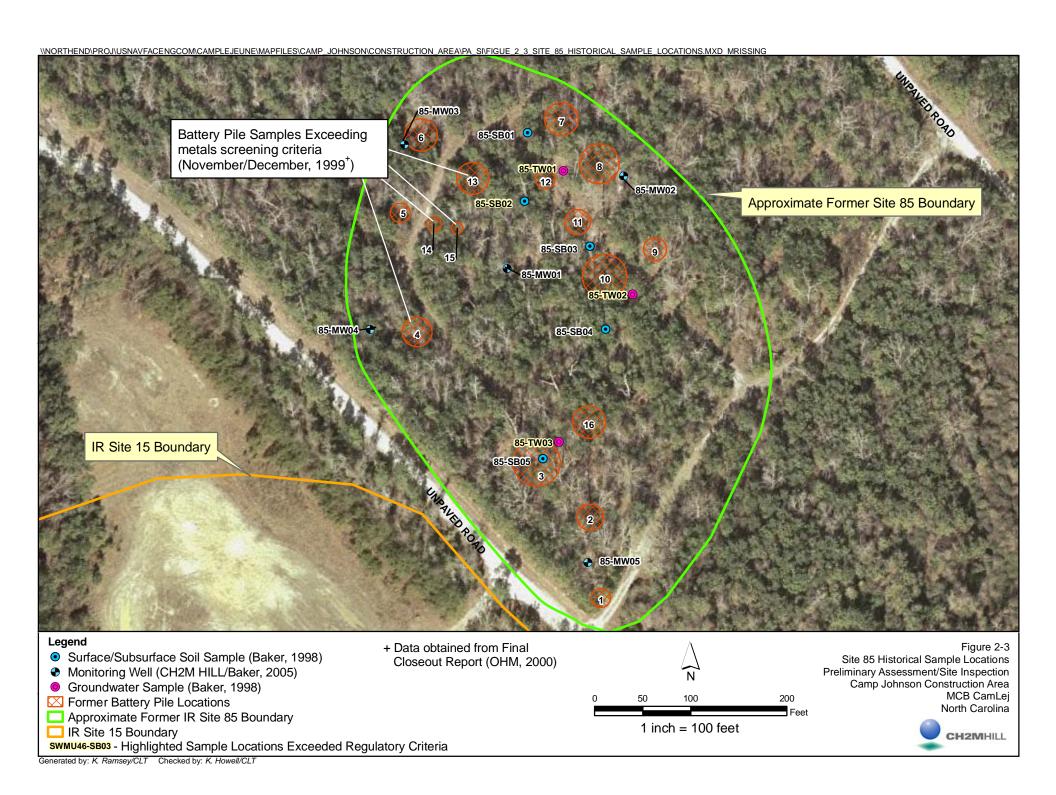
IR Site A RFI Test Trench Sample Location (Baker/CH2M HILL 2005) SWMU46-SB03 - Highlighted Sample Locations Exceeded Regulatory Criteria



1 inch = 100 feet

Site 15 Historical Sample Locations Preliminary Assessment/Site Inspection Camp Johnson Construction Area MCB CamLei North Carolina





Physical Settings and Regional Hydrogeology

3.1 Physical Setting and Regional Hydrogeology

The following sections describe the physical characteristics of the region, MCB CamLej, and the CJCA.

3.1.1 Regional and Facility-wide Physiography, Climate, and Surface Water Hydrology

The MCB CamLej facility lies within the Tidewater region of the Atlantic Coastal Plain Physiographic Province in North Carolina. This physiographic province stretches from Georgia to Long Island, New York. The Tidewater region is generally swampy and of low relief, with elevations averaging about 20 feet above mean sea level (amsl). The physiography of the area is typical of the Atlantic Coastal Plain with stepped terraces consisting of wide, gently eastward-sloping plains separated by linear, steeper, northward and eastward-facing scarps (**Figure 3-1**). Within MCB CamLej, the topography is characterized by low elevations and relatively low relief. The surface elevations at MCB CamLej range from sea level to approximately 70 feet amsl, with most of MCB CamLej's topography ranging from 20 to 40 feet amsl. The relief between stream and inter-stream areas typically ranges from 20 to 30 feet. The New River and its tributaries bisect the Base in a northwest to southeast alignment and the land at MCB CamLej generally slopes toward the New River with a grade of about 0.5 percent.

Mild winters and hot humid summers generally characterize climatic conditions within southeastern North Carolina and at MCB CamLej. Winters are usually short and mild with occasional short, cold periods. Summers are long, hot and humid. Average annual precipitation in the area is approximately 50 inches. The average ambient air temperature is 62 degrees Fahrenheit (weatherreports.com).

3.1.2 Site Topography, Drainage, and Surface Features

The CJCA is generally undeveloped with areas of dense vegetation and sporadic open areas. Additionally, several areas across the CJCA have been identified as wetlands or potential wetlands areas as shown on **Figure 2-1**. The surface topography slopes gently toward the southwest and the New River, ranging in elevation from roughly 5 to 20 ft amsl, as shown on **Figure 3-2**.

3.2 Geology and Hydrogeology

3.2.1 General Regional Geologic and Hydrogeologic Framework

MCB CamLej is underlain by an eastward thickening sediment wedge of marine and non-marine origins ranging in age from early Cretaceous to Holocene. The wedge of sediment begins at the western boundary of the Atlantic Coastal Plain physiographic province, known as the Fall Line, and dips southeastward towards the coast. Along the coastline,

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several thousands of feet of interlayered, unconsolidated sediments are present consisting of gravel, sand, silt, clay deposits, calcareous clays, shell beds, sandstone and limestone that was deposited over pre-Cretaceous crystalline basement rock. Within the MCB CamLej area, approximately 1,500 feet of a sedimentary sequence overlies the crystalline basement rock. The geologic formations of southeastern North Carolina and MCB CamLej are presented in **Table 3-1**.

The sedimentary sequence of southeastern North Carolina includes seven aquifers and their associated confining units (less permeable beds of clay and silt) including the surficial, Castle Hayne, Beaufort, Peedee, Black Creek, and Upper and Lower Cape Fear aquifers shown in **Table 3-1** (Cardinell et al., 1993). Inter-stream areas generally provide the recharge for aquifers within the Coastal Plain region, and have been estimated to have a yearly recharge range of 5 to 21 inches from infiltration of rainfall (Heath, 1989). In general, natural discharge of groundwater from the Coastal Plain aquifer system is into streams, swamps, and lakes. Evapotranspiration from the vadose zone and upward leakage through confining units into streams, estuaries, swamps, and even the ocean also contribute to groundwater discharge. Within the vicinity of MCB CamLej, the New River estuary serves as the principal discharge area for groundwater from the Castle Hayne aquifer (Harned, 1989).

3.2.2 Site-Specific Geologic and Hydrogeologic Framework

This section presents the geological and hydrogeological characteristics of the CJCA, as indicated by the intrusive sampling activities conducted during the Focused PA/SI.

Site Geology

The regional stratigraphic framework of the Lower Coastal Plain in North Carolina is summarized by **Table 3-1**. However, the lithology described in this section is limited to the undifferentiated formation as observed during the Focused PA/SI field activities.

Soil boring logs presented in **Appendix B** show that the shallow soils consist predominantly of fine grained sand with varying amounts of silt or clay. Discontinuous layers of fine grained clayey sands and sandy clays were observed to approximately 11 feet below ground surface (ft bgs). This clay layer was generally underlain by fine grained sands and silty sands to approximately 20 ft bgs.

Site Hydrogeology

Site-specific hydrogeologic information was derived from the temporary groundwater monitoring wells installed within the surficial aquifer. During the July 2009 PA/SI field investigation, groundwater elevations ranged from approximately 5 feet amsl to 28 ft amsl (**Table 3-2**). **Figure 3-7** illustrates the estimated groundwater flow direction within the surficial aquifer. The variability and heterogeneity of the shallow undifferentiated soils leads to localized recharge rates and variable water table elevations. Outlier groundwater elevations were not used in estimating the generalized groundwater flow direction. The figure indicates that shallow groundwater across the CJCA generally flows to the southwest, which generally follows the topography of the CJCA.

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3.3 Regional Water Usage

Regionally in southeastern North Carolina, the Castle Hayne aquifer may be utilized as a potable source of domestic water supply, watering lawns, or filling swimming pools. Potable water supplies for MCB CamLej and the surrounding residential areas are provided by water supply wells that pump groundwater from the Castle Hayne aquifer. Although freshwater is present within the surficial, Castle Hayne, Beaufort, and Peedee aquifers, all of which are located below MCB CamLej, only the Castle Hayne aquifer is used by MCB CamLej as a water supply source (Cardinell et al., 1993).

Figure 3-8 illustrates the locations of public water supply wells within a 4-mile radius of the CJCA, and shows that no wells are located within the CJCA boundary. Three wells were identified off Base north of U.S. Route 17 within a 4-mile radius of the CJCA (NC OneMap, 2009), and 30 water supply wells are located on Base within a 4-mile radius of the CJCA sites. Of the on-base wells, 19 are currently active, and serve the Camp Geiger, Marine Corps Air Station, Verona Loop, Hadnot Point and Holcomb Boulevard well fields, shown on **Table 3-3** and **Figure 3-8**. MCB CamLej controls all the land between the CJCA sites and associated groundwater discharge points.

According to the Wellhead Protection Plan, the CJCA is not located within a well head protection area (AH Environmental Consultants, 2002).

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TABLE 3-1Geologic and Hydrogeologic Units of the Inner Coastal Plain Camp Johnson Construction Area
Focused PA/SI Report
MCB CamLej, North Carolina

	Geologic	Units	Hydrogeologic Units		
System	Series	Formation	Aquifer and Confining Unit		
Queternery	Holocene	Undifferentiated	Surficial Aquifor		
Quaternary	Pleistocene	Ondinerentiated	Surficial Aquifer		
	Di:	Yorktown Formation ¹	Yorktown confining unit ¹		
	Pliocene	Yorktown Formation	Yorktown Aquifer ¹		
		Fastover Formation ¹	Yorktown Aquifer ¹		
		Eastover Formation	Pungo River confining unit ¹		
Tertiary	Miocene	D D: E :: 4	Pungo River confining unit ¹		
		Pungo River Formation1 Pungo River Aquifer ¹	Pungo River Aquifer ¹		
		Belgrade Formation	Castle Hayne confining unit		
	Oligocene	River Bend Formation	Castle Hayne Aquifer		
	Eocene	Castle Hayne Formation	Castle Hayne Aquifer		

Notes:

Created by: B. Propst/CLT Checked by: K. Howell/CLT

¹ Geologic and hydrogeologic units not present beneath MCB Camp Lejeune. Source: Cardinell et al., 1993.

TABLE 3-2Summary of Well Construction Information
Camp Johnson Construction Area
Focused PA/SI Report
MCB CamLej, North Carolina

Well ID	Date	Screened Interval (ft)	Ground Elevation (ft msl)	DTW (ft btoc)	TOC Elevation (ft msl)	GW Elevation (ft msl)
CJCA - TW01	7/28/2009	8-18	19.70	16.27	21.70	5.43
CJCA - TW02	7/28/2009	8-18	18.27	9.46	20.19	10.73
CJCA - TW03	7/28/2009	10-20	19.01	15.92	19.57	3.65
CJCA - TW04	7/29/2009	6-16	22.62	12.08	23.58	11.50
CJCA - TW05	7/28/2009	13-23	20.10	16.35	21.24	4.89
CJCA - TW06	7/28/2009	6-16	17.61	13.81	18.56	4.75
CJCA - TW08	7/27/2009	8-18	12.93	11.25	14.47	3.22
CJCA - TW09	7/26/2009	6-16	14.03	11.01	15.27	4.26
CJCA - TW10	7/27/2009	2-12	25.63	4.41	26.77	22.36
CJCA - TW11	7/27/2009	8-18	13.41	9.46	14.70	5.24
CJCA - TW12	7/26/2009	8-18	14.97	11.30	16.26	4.96
CJCA - TW13	7/26/2009	5-15	12.27	7.69	13.64	5.95
CJCA - TW14	7/26/2009	10-20	15.07	10.67	15.71	5.04
CJCA - TW15	7/26/2009	8-18	17.32	11.81	18.55	6.74
CJCA - TW16	7/25/2009	7-17	11.61	10.42	12.23	1.81
CJCA - TW17	7/24/2009	8-18	8.23	11.41	9.57	-1.84
CJCA - TW18	7/26/2009	9-19	14.3	9.60	15.52	5.92
CJCA - TW19	7/26/2009	8-18	23.37	12.42	25.43	13.01
CJCA - TW20	7/26/2009	7-17	12.39	11.70	15.65	3.95
CJCA - TW21	7/26/2009	6-16	11.34	11.71	13.33	1.62
CJCA - TW22	7/24/2009	12-22	20.52	9.91	22.31	12.40
CJCA - TW23	7/23/2009	2-12	8.72	4.80	10.29	5.49
CJCA - TW24	7/27/2009	6-16	27.34	8.47	28.35	19.88
CJCA - TW25	7/27/2009	8-18	13.04	11.35	15.04	3.69
CJCA - TW26	7/27/2009	6-16	6.89	6.24	9.32	3.08
CJCA - TW27	7/23/2009	10-20	10.84	15.60	12.53	-3.07
CJCA - TW28	7/23/2009	2-12	2.89	4.96	4.73	-0.23
CJCA - TW29	7/25/2009	6-16	14.01	13.58	16.18	2.60
CJCA - TW30	7/25/2009	6-16	10.53	11.79	12.79	1.00
CJCA - TW31	7/23/2009	2-12	6.63	8.79	9.12	0.33
CJCA - TW32	7/25/2009	6-16	12.79	10.68	13.99	3.31
CJCA - TW33	7/25/2009	6-16	14.89	12.35	15.96	3.61
CJCA - TW34	7/25/2009	6-16	12.72	13.10	14.96	1.86
CJCA - TW35	7/22/2009	5-15	7.95	8.65	9.19	0.54
CJCA - TW36	7/22/2009	6-16	15.98	11.87	17.98	6.11
CJCA - TW37	7/22/2009	5-15	11.48	13.87	13.80	-0.07
CJCA - TW38	7/23/2009	10-20	4.94	5.61	6.70	1.09
IR15 - TW01	7/28/2009	10-20	15.94	12.79	16.49	3.70
IR15 - TW02	7/29/2009	10-20	15.02	14.47	15.66	1.19
IR15 - TW03	7/28/2009	8-18	15.91	15.92	17.45	1.53
IR15 - TW04	7/29/2009	8-18	15.31	11.20	17.11	5.91
IR15 - TW05	7/28/2009	6-16	12.32	8.39	12.91	4.52
IR17 - TW01	7/29/2009	6-16	6.63	10.88	7.40	-3.48
IR17 - TW02	7/29/2009	7-17	8.29	10.07	16.16	6.09
IR85 - MW01	7/23/2009	ND	NM	13.51	NM	
IR85 - MW02	7/23/2009	ND	NM	15.26	NM	
IR85 - MW04	7/22/2009	ND	NM	11.77	NM	
IR85 - MW05	7/21/2009	ND	NM	ND	NM	
IR85 - TW04	7/27/2009	10-20	17.72	14.65	20.48	5.83
IR85 - TW05	7/29/2009	10-20	17.30	15.67	19.89	4.22
IR85 - TW06	7/30/2009	6-16	14.32	10.22	15.00	4.78
IR85 - TW07	7/30/2009	7-17	14.80	11.90	16.55	4.65
IR85 - TW08	7/30/2009	8-18	16.14	12.52	17.74	

Notes:

ND- no data available NM - not measured

TABLE 3-3
Regional Water Supply Wells
Camp Johnson Construction Area
Focused PA/SI Report
MCB CamLej, North Carolina

Well ID	Status	Well Field	Year Drilled	Total Depth (ft)	Diameter (in)	Original Pump Rate (gpm)	Pump Rate 2001 (gpm)
PSW-TC502	Inactive	Camp Geiger	1942	184	10	400	235
PSW-TC600	Active	Camp Geiger	1942	70	8	130	104
PSW-TC604	Inactive	Camp Geiger	1942	113	8	250	157
PSW-TC700	Inactive	Camp Geiger	1941	76	18	125	149
PSW-TC1000	Inactive	Camp Geiger	1942	153	8	200	60
PSW-TC1001	Inactive	Camp Geiger	1975	100	8	175	160
PSW-TC1251	Active	Camp Geiger	1975	155	8	200	175
PSW-TC1253	Active	Camp Geiger	1975	250	NA	200	195
PSW-TC1254	Inactive	Camp Geiger	1975	195	NA	200	100
PSW-AS106	Inactive	MCAS	1954	179	NA	225	183
PSW-AS131	Inactive	MCAS	NA	200	NA	260	275
PSW-AS190	Active	MCAS	NA	180	NA	250	159
PSW-AS191	Active	MCAS	NA	180	NA	250	285
PSW-AS203	Inactive	MCAS	NA	173	NA	130	220
PSW-AS4140	Active	MCAS	NA	193	NA	110	110
PSW-AS4150	Active	MCAS	NA	193	NA	128	115
PSW-AS5001	Active	MCAS	NA	193	NA	185	50
PSW-AS5009	Inactive	MCAS	NA	196	NA	100	111
PSW-VL101	Active	Verona Loop	1994	300	8	950	700
PSW-VL102	Active	Verona Loop	1997	280	12	1001	850
PSW-HP622	Active	Hadnot Poirnt	NA	227	NA	300	280
PSW-HP643	Active	Holcomb Boulevard	1971	240	10	260	146
PSW-HP644	Active	Holcomb Boulevard	1971	255	10	160	192
PSW-HP698	Active	Holcomb Boulevard	1985	124	10	250	170
PSW-HP699	Active	Holcomb Boulevard	1985	108	10	275	108
PSW-HP700	Active	Holcomb Boulevard	1985	130	10	275	100
PSW-HP701	Active	Holcomb Boulevard	1985	100	10	150	185
PSW-HP703	Active	Holcomb Boulevard	NA	NA	NA	275	190
PSW-HP704	Active	Holcomb Boulevard	1985	124	10	200	100
PSW-HP707	Inactive	Holcomb Boulevard	1986	130	NA	120	133
BA-1	Active	Off base	NA	NA	NA	NA	NA
BA-1A	Active	Off base	NA	NA	NA	NA	NA
BA-2	Active	Off base	NA	NA	NA	NA	NA

Notes

On-Base well data from: AH Environmental Consultants, 2002. Wellhead Protection Plan, 2002 Update.

Off-base well data from: Source Water Assessment Program accessible at http://swap.den.enr.stste.nc.us/swap_app/newer.htm

MCAS - Marine Corps Air Station

NA - Not available

ft- feet

gpm - gallons per minute

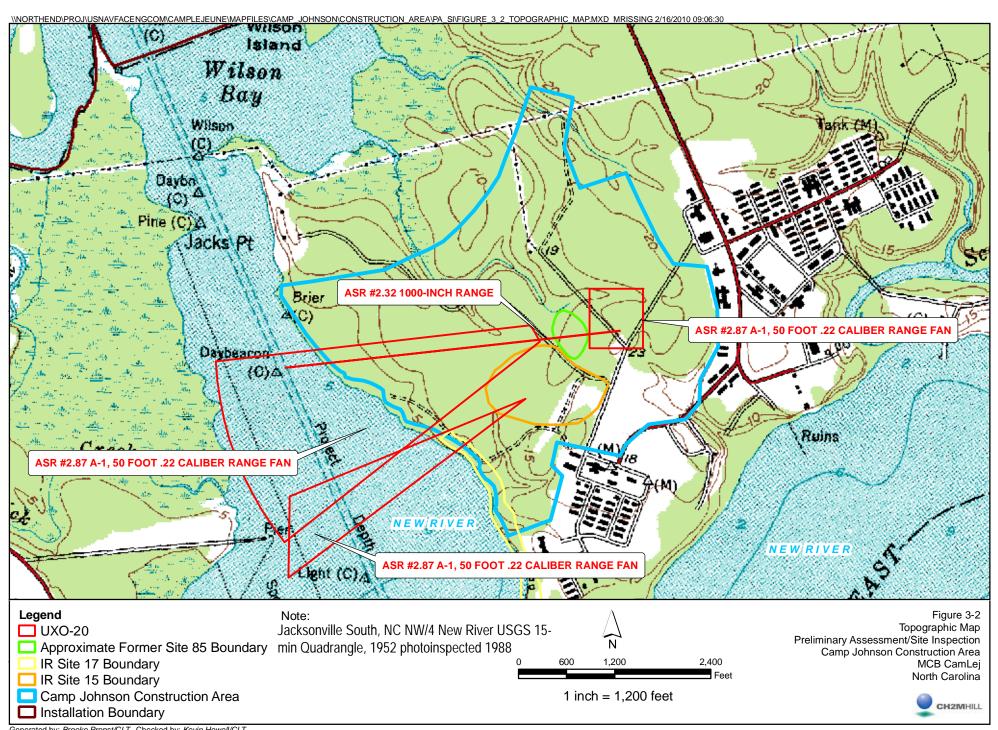
in - inch

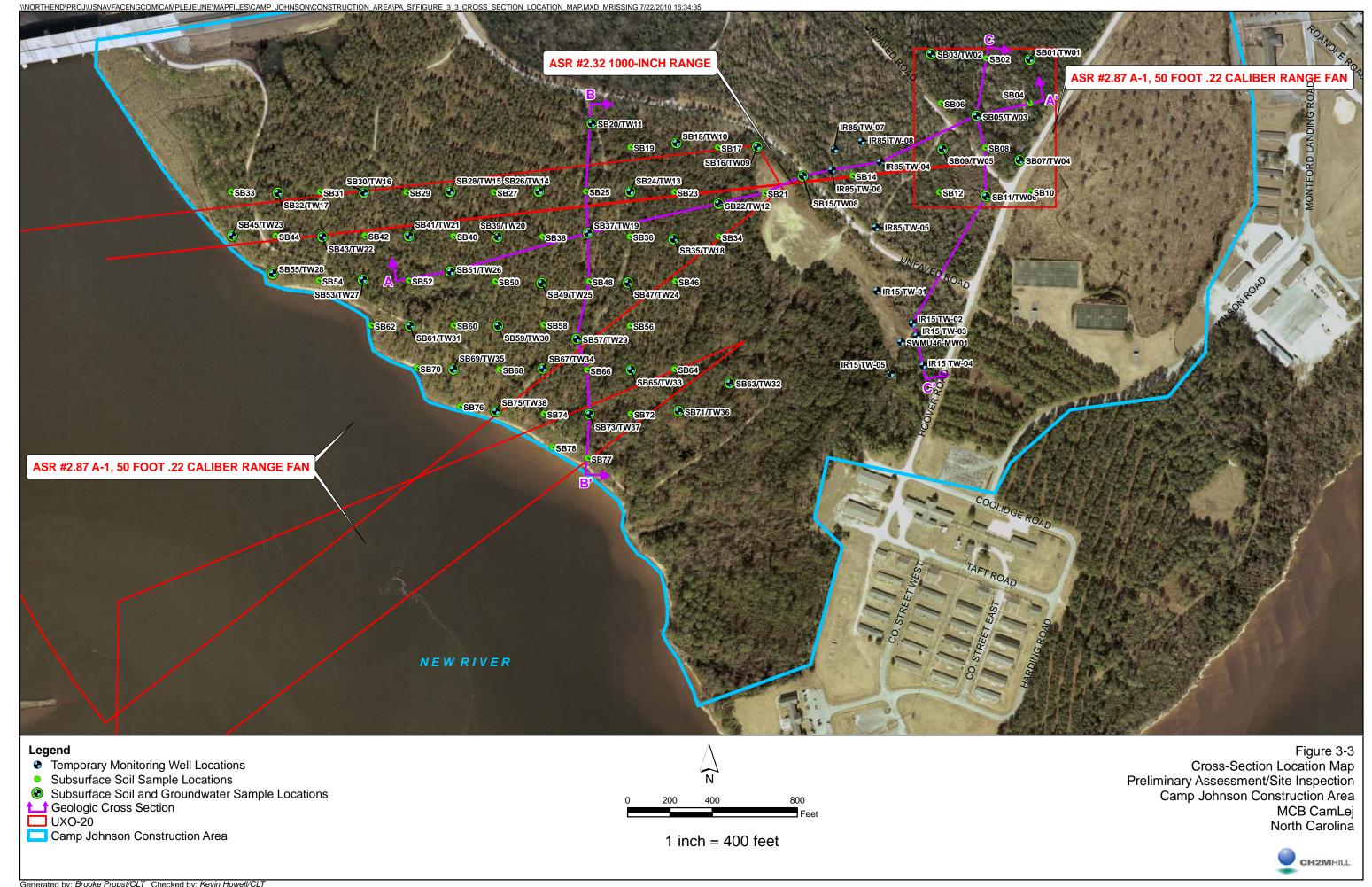


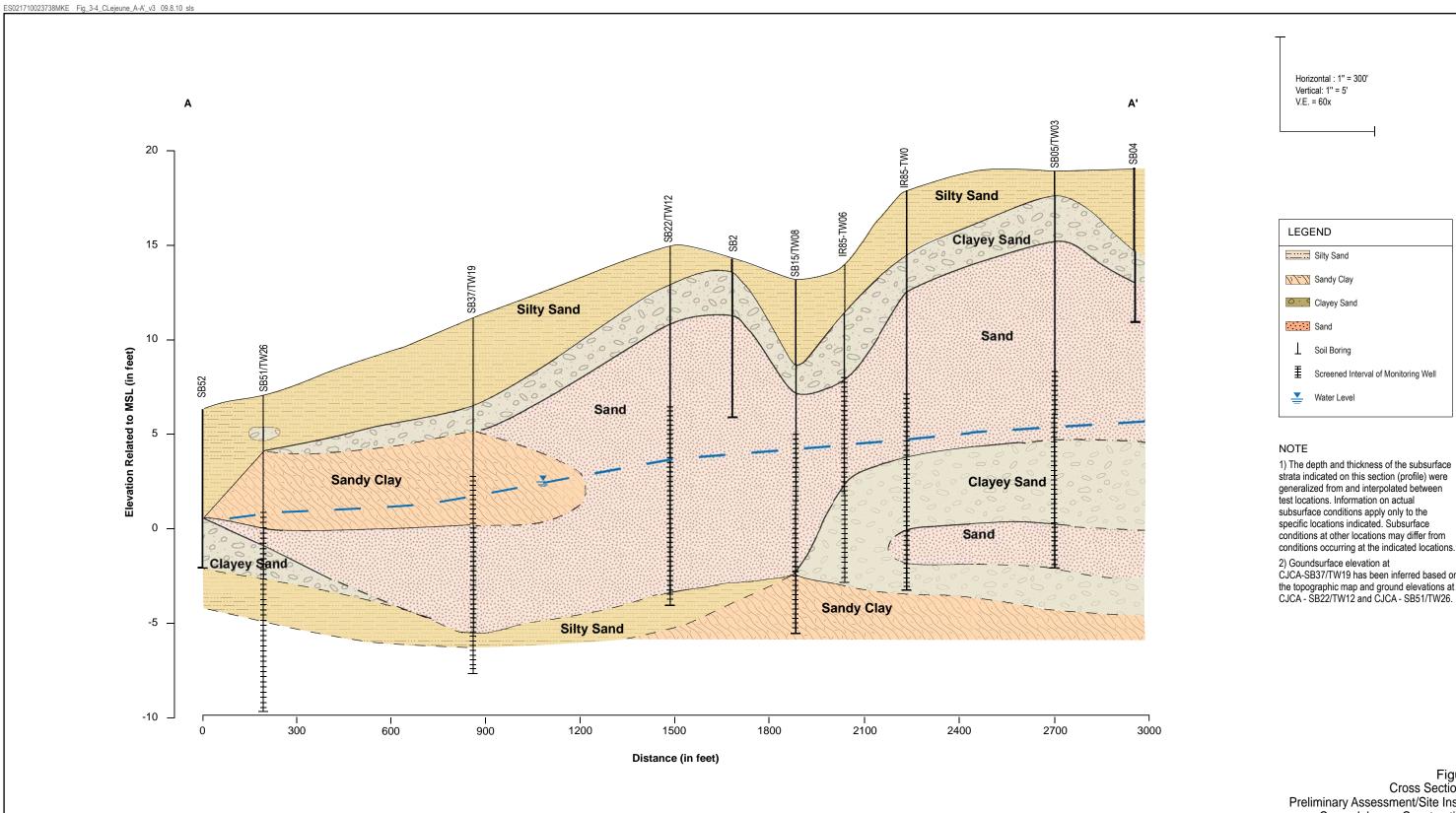
Source: USGS Report by Cardinell, A.P., S.A. Berg, and O.B. Lloyd, Jr. (1993)

Figure 3-1
Physiographic Provinces of Eastern North Carolina
Preliminary Assessment/Site Inspection
Camp Johnson Construction Area
MCB CamLej
North Carolina







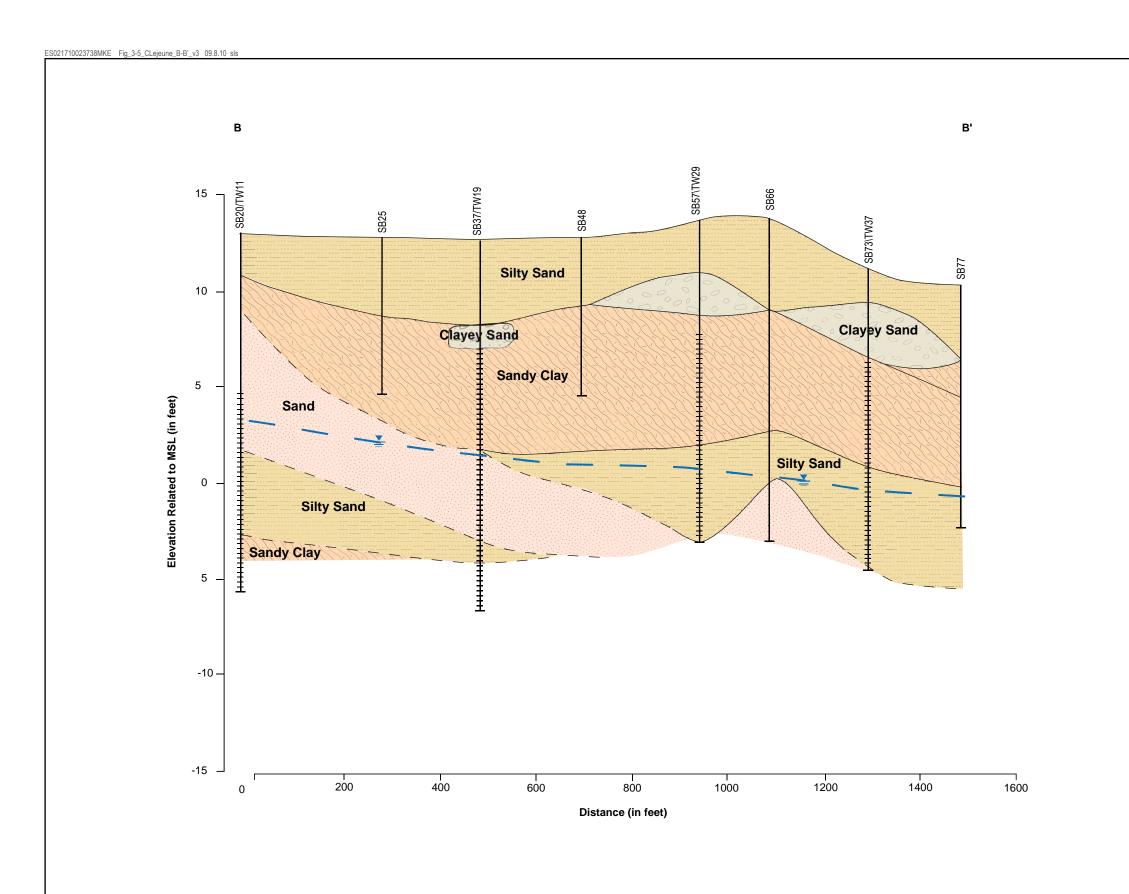




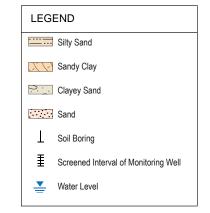
- 1) The depth and thickness of the subsurface strata indicated on this section (profile) were generalized from and interpolated between test locations. Information on actual subsurface conditions apply only to the specific locations indicated. Subsurface conditions at other locations may differ from
- 2) Goundsurface elevation at CJCA-SB37/TW19 has been inferred based on the topographic map and ground elevations at CJCA SB22/TW12 and CJCA SB51/TW26.

Figure 3-4 Cross Section (A-A') Preliminary Assessment/Site Inspection Camp Johnson Construction Area MCB CamLej North Carolina





Horizontal : 1" = 200' Vertical: 1" = 5' V.E. = 40x

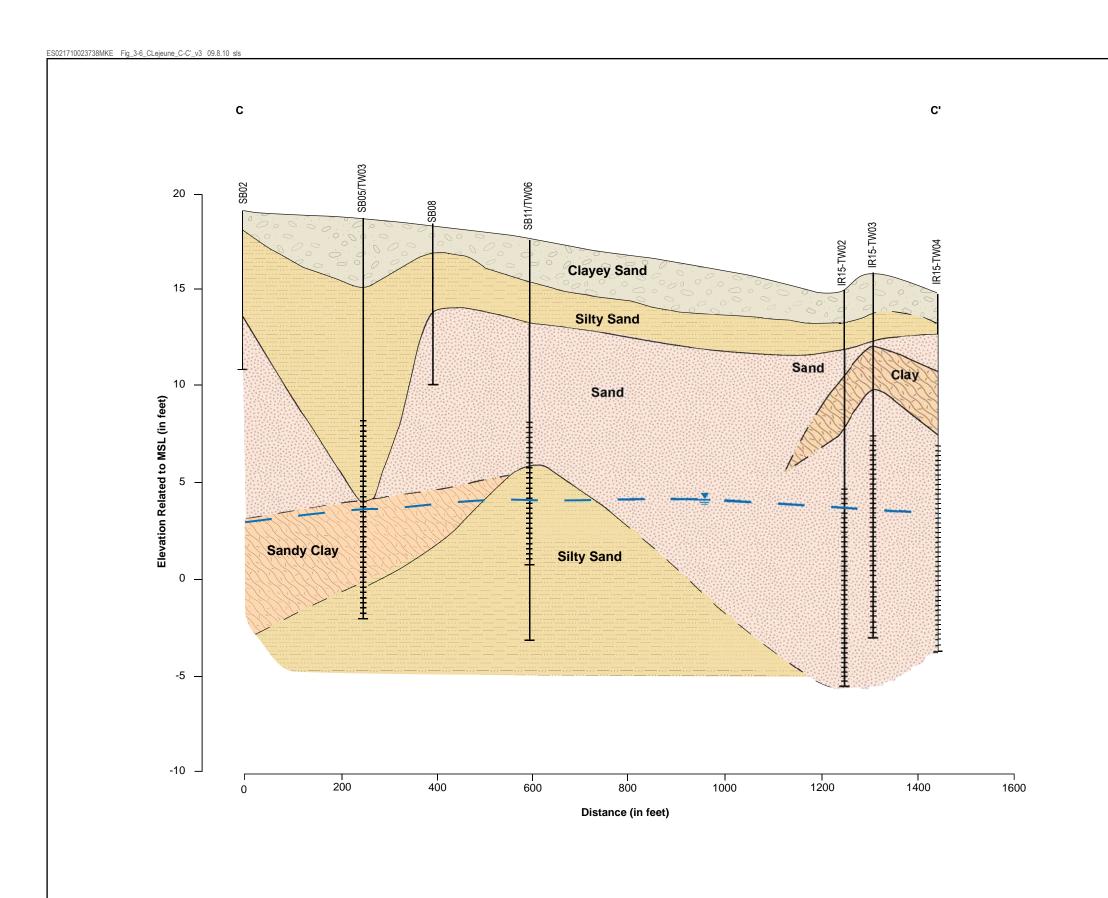


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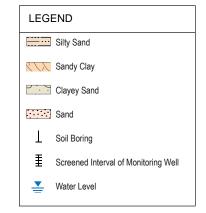
1) The depth and thickness of the subsurface strata indicated on this section (profile) were generalized from and interpolated between test locations. Information on actual subsurface conditions apply only to the specific locations indicated. Subsurface conditions at other locations may differ from conditions occurring at the indicated locations.

Figure 3-5 Cross Section (B-B') Preliminary Assessment/Site Inspection Camp Johnson Construction Area MCB CamLej North Carolina





Horizontal : 1" = 200' Vertical: 1" = 5' V.E. = 40x

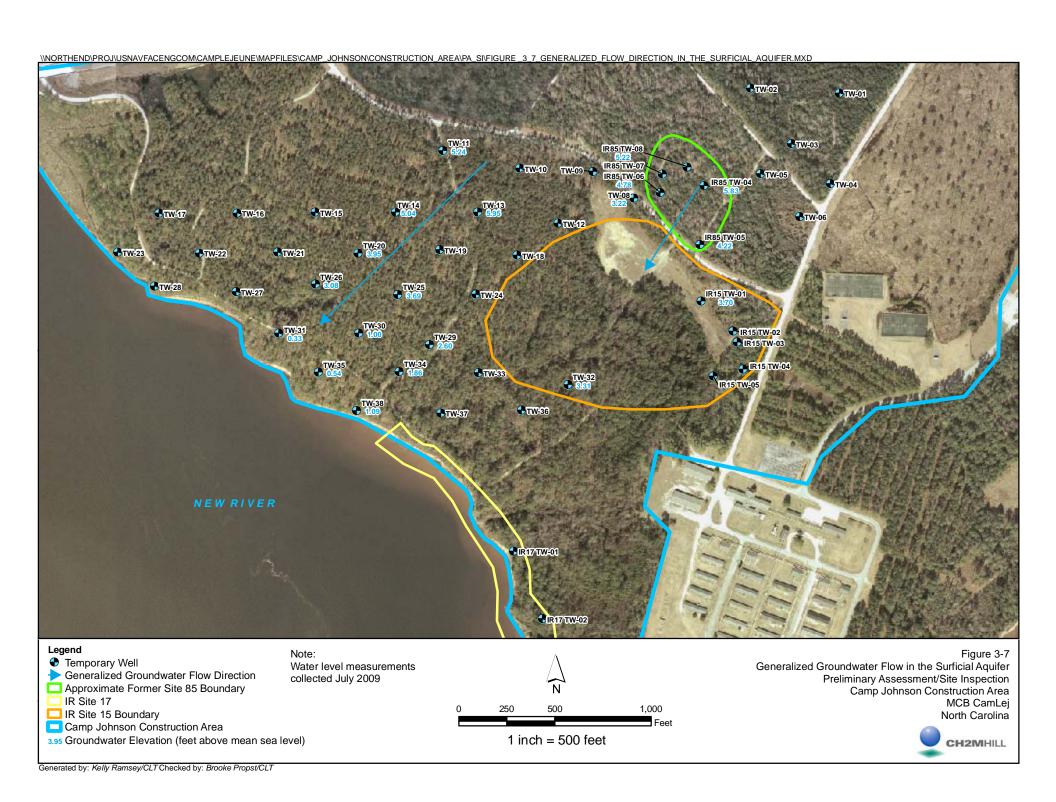


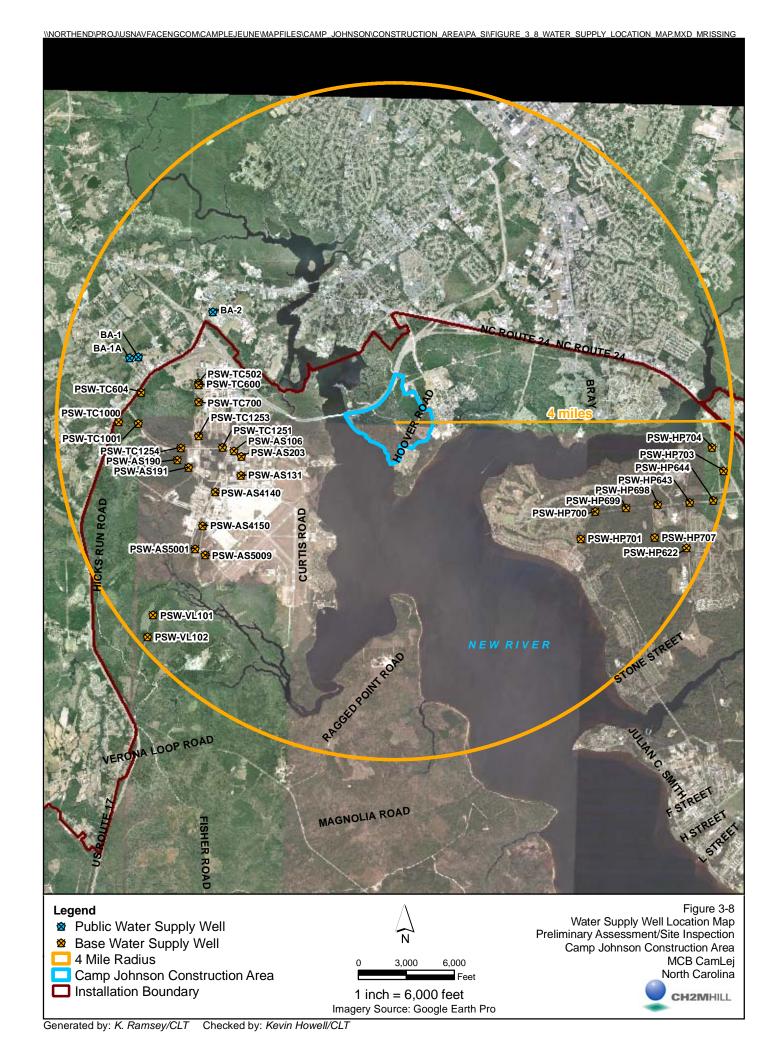
NOTE

1) The depth and thickness of the subsurface strata indicated on this section (profile) were generalized from and interpolated between test locations. Information on actual subsurface conditions apply only to the specific locations indicated. Subsurface conditions at other locations may differ from conditions occurring at the indicated locations.

Figure 3-6 Cross Section (C-C') Preliminary Assessment/Site Inspection Camp Johnson Construction Area MCB CamLej North Carolina







SECTION 4

Field Investigation Activities and Data Evaluation

4.1 Field Investigation Activities

Field activities were conducted in June and July 2009 in accordance with the standard operating procedures (SOPs) outlined in the work plan (CH2M HILL, 2009) and detailed in both the MMRP Master Project Plans (CH2M HILL, 2008a), and the Master Project Plans (CH2M HILL, 2008b).

The Focused PA/SI field activities consisted of the following:

- Site surveying
- Vegetation clearing
- Surface and subsurface soil sampling
- Installation and abandonment of temporary groundwater monitoring wells
- Groundwater sampling
- Test pit excavation

A summary of the environmental samples collected and sample analysis is provided in **Table 4-1**. Detailed investigation activities conducted at UXO-20 and IR Sites 15, 17, and 85 are summarized below.

4.1.1 Site Surveying

Land surveying activities were conducted by Lanier Surveying of Swansboro, North Carolina, a North Carolina-registered Land Surveyor, in June 2009. The land surveying was conducted in two phases:

- Phase 1 Surveyed and marked the center points of the sampling grids, transects, and surface soil, subsurface soil, and groundwater sample locations;
- Phase 2 Surveyed 50 temporary groundwater monitoring well top-of-casing elevations.

4.1.2 Vegetation Clearing

To facilitate access to the sampling and test pit locations, vegetation was removed along transects from approximately 10 acres of UXO-20 and approximately 2 acres in each of the IR sites. Vegetation less than 3 inches in diameter was cut to within 6 inches of the ground surface, mulched, and left in place. Trees larger than 3 inches in diameter were left undisturbed. All vegetation clearing was performed by Wetlands and Woodlands Management of Castle Hayne, North Carolina.

On June 17, 2009, during vegetation clearance activities near UXO-20, seven 4-inch canisters with black handles labeled "Grenade Hand - Sig Smoke, Green L68A1" were found by CH2M HILL personnel. The canisters appeared to be spent smoke grenades. After

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evaluation of the canisters by CH2M HILL UXO technicians, it was determined that they did not pose a hazard to field personnel and were left in place. Avoidance practices were used for the remainder of the field effort and no additional items were observed.

4.1.3 Surface Soil Sampling

Surface soil sampling activities at the CJCA were conducted from July 6 through 10, 2009. The activities specific to the former ranges and IR sites are summarized below.

UXO-20

UXO-20 was divided into 1-acre grids in which three surface soil samples were collected using the TR-02-1 sampling method as summarized below and described in the United States Army Corps of Engineers (USACE) Technical Report ERDC/CRREL TR-02-1, "Guide for Characterization of Sites Contaminated with Energetic Materials" (Thiboutot, Ampleman, and Hewitt, 2002). A total of 214 surface soil samples were collected from UXO-20 (CJCA-SS01 through CJCA-SS214), as shown on **Figure 4-1**.

Each sample location was defined as 1 meter (m) \times 1 m in size. Each surface soil sample was composed of a minimum of 30 aliquots of soil collected from 0 to 1 ft bgs from random locations within each 1 m \times 1 m area. The soil samples were collected using a JMC BacksaverTM equipped with a 0.56-inch inner diameter sampling tube. The sample aliquots at each location were composited into a single sample following the *Homogenization of Soil and Sediment Samples* SOP in Appendix C of the MRP Master Project Plans (CH2M HILL, 2008a).

Following homogenization, the soil was transferred to the appropriate sample containers, placed on ice, and shipped under chain of custody via FedEx courier to GPL Laboratories of Frederick, Maryland, for analysis of the following parameters:

• Select metals – arsenic, antimony, copper, lead, and zinc (SW846 6010B/7471A)

Additionally, 32 surface soil samples (15 percent) collected from UXO-20 were analyzed for pH by SW846 9045C for geochemical evaluation purposes.

IR Sites 15, 17, and 85

Figures 4-2 through **4-4** illustrate the locations of the surface soil samples collected from Sites 15, 17, and 85, respectively. The surface soil samples collected at each site included:

- Site 15- 10 surface soil samples
- Site 17 5 surface soil samples
- Site 85 13 surface soil samples

Surface soil samples at the three IR sites were obtained from a depth of 0 to 1 ft bgs using stainless steel trowels. A portion of each sample was split and field screened for the presence of VOCs using a flame-ionization detector (FID) and the presence of metals using a hand held x-ray fluorescence (XRF) instrument. An undisturbed portion of the sample was placed in VOC-specific Terra Core™ soil samplers with in-field preservation, of either sodium bicarbonate or methanol. The remaining sample was homogenized in a stainless steel bowl and placed in appropriate sample containers for the remaining analytes. The

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samples were packed on ice and shipped under chain of custody via FedEx courier to GPL Laboratories of Frederick, Maryland, for analysis of the following parameters:

- Target compound list (TCL) VOCs (SW846 8260B)
- Total Metals (SW846 6010B/7470A)
- TCL SVOCs (SW846 8270C)
- Pesticides/PCBs (SW846 8081A/8082)
- pH (SW846 9045C)

4.1.4 Subsurface Soil Sampling

A total of 104 subsurface soil samples were collected from direct-push technology (DPT) bore holes advanced in accordance with the *Direct-Push Soil Sample Collection* SOP in Section 3.4 of the Master Project Plans (CH2M HILL, 2008b). DPT drilling services were provided by South Atlantic Environmental Drilling and Construction Company (SAEDACCO), Inc. of Fort Mill, South Carolina. Prior to advancing the DPT soil borings, subsurface utilities were cleared to a minimum of 5 ft bgs using a hand auger. Continuous soil cores were collected from each boring and described using the Unified Soil Classification System. Soil boring logs are provided in **Appendix B**.

Figures 4-2 through **4-5** illustrate the locations of subsurface soil samples collected at each site:

- UXO-20 77 subsurface soil samples
- Site 15 10 subsurface soil samples
- Site 17 5 subsurface soil samples
- Site 85 -12 subsurface soil samples

Soil boring CJCA-SB07 was not collected in lieu of an overlapping Site 85 soil boring. Each soil boring was screened for the presence of VOCs using an FID, and metals using a hand held XRF. Soil samples collected for laboratory analysis were selected from the depth that exhibited the greatest field screening reading within the interval of 2 to 7 ft bgs. If the FID and XRF screening did not indicate impacts within this zone, a composite sample of the entire interval was collected for analysis.

Subsurface soil samples collected within UXO-20 were analyzed by a fixed base laboratory for the following parameters:

• Select metals - arsenic, antimony, copper, lead, and zinc (SW846 6010B/7471A)

Additionally, 11 subsurface soil samples (15 percent) collected from UXO-20 were analyzed for pH by SW846 9045C for geochemical evaluation purposes.

Subsurface soil samples collected from Sites 15, 17, and 85 were analyzed by a fixed base laboratory for the following parameters:

- TCL VOCs (SW846 8260B)
- Total Metals (SW846 6010B/7470A)
- TCL SVOCs (SW846 8270C)
- Pesticides/PCBs (SW846 8081A/8082)
- pH (SW846 9045C)

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4.1.5 Temporary Monitoring Well Installation

A total of 50 DPT boring locations were completed as temporary groundwater monitoring wells. Temporary well locations are shown by **Figures 4-2** through **4-5**, and included:

- UXO-20 38 temporary wells
- Site 15 5 temporary wells
- Site 85 5 temporary wells
- Site 17 2 temporary wells

The temporary monitoring wells were constructed using 1-inch inner diameter Schedule 40 polyvinyl chloride casing with 10 feet of 0.010-inch machine slotted well screen, equipped with a pre-packed sand filter. The screened interval of each temporary monitoring well was set to bracket the water table, at depths ranging from 13 to 20 ft bgs. A sand pack was placed around the well screen to approximately one ft above the top of the well screen and a bentonite seal was installed above the sand pack extending to ground surface. Well construction information is summarized in **Table 3-2**. Well construction diagrams are provided in **Appendix B**.

Following installation, the temporary monitoring wells were developed by surging and pumping until the water quality parameters stabilized. The wells were constructed, developed, and subsequently abandoned in accordance with *Temporary Well Installation* SOP in Section 3.6 of the Master Project Plans (CH2M HILL, 2008b).

4.1.6 Groundwater Sampling

Groundwater samples were collected from the 50 newly installed temporary monitoring wells and 4 of the existing permanent monitoring wells located at Site 85. Following well development, the 50 temporary monitoring wells were allowed to equilibrate for a period of at least 24 hours prior to collecting the groundwater sample. Depth-to-water measurements were collected from each well prior to purging and sampling using an electronic water level probe. Water level measurements are presented in **Table 3-2**.

All groundwater samples were collected using low-flow sampling techniques in accordance with the *Low-Flow Groundwater Sampling from Monitoring Wells* SOP in Section 3.11 of the Master Project Plans (CH2M HILL, 2008b). During purging, water quality parameters (conductivity, dissolved oxygen, pH, temperature, turbidity, and oxidation-reduction potential) were measured using a water quality meter. Groundwater samples were collected after water quality parameters had stabilized over consecutive readings and at least one well volume had been purged.

Parameters were considered stabilized when three successive readings were as follows:

- pH within 0.1 pH unit
- Temperature is stable
- Conductivity within 10 percent
- Oxidation-reduction potential within 10 millivolts
- Turbidity below 10 Nephelometric turbidity units

If water quality parameters did not stabilize, at least three well volumes were purged prior to sampling. If purging resulted in the well going dry, the well was allowed time to recharge

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and the sample was collected. In wells in which at least three well volumes were purged and turbidity remained above 10 NTUs, groundwater samples were collected when turbidity measurements were as low as practicable. A summary of the water quality parameters are presented in **Table 4-2**.

Groundwater samples collected from UXO-20 were analyzed for the following parameters:

- Select Metals arsenic, antimony, copper, lead, and zinc (SW846 6010B/7470A)
- Dissolved Metals- arsenic, antimony, copper, lead, and zinc (SW846 6010B/7470A) at wells located near the New River

Groundwater samples collected from Sites 15, 17, and 85 were analyzed for the following parameters:

- TCL VOCs (SW846 8260B)
- Total Metals (SW846 6010B/7470A)
- Dissolved Metals (SW846 6010B/7470A)
- TCL SVOCs (SW846 8270C)
- Pesticides/PCBs (SW846 8081A/8082)

All groundwater samples were collected in appropriately labeled containers, immediately packed on ice in coolers and shipped under chain-of-custody via FedEx courier to GPL Laboratories of Frederick, Maryland.

4.1.7 Test Pits

A total of 12 test pits were excavated at Sites 15 and 85. The test pits were completed in accordance with Section 3.15, *Test Pits/Trenching*, of the Master Project Plans (CH2M HILL, 2008b). Following buried utility clearance, an excavator equipped with a 2-foot wide bucket was used to excavate a trench. The length and depth of each test pit varied based upon the transition from waste material (if encountered) to native soils. The test pits excavated at Site 15 ranged from 8 to 9 feet long and 5.5 to 7 feet deep. At Site 85, the test pits ranged from 3 to 13 feet long and 2 to 6 feet deep. The test pit excavations were completed by SAEDACOO, under direct supervision of a CH2M HILL geologist. The excavation was completed by removing lifts of no more than 12 inches at a time, until an assessment of the material could be made. The material removed from each pit was temporarily staged on 10-mil gauge plastic sheeting, described in accordance with the USCS, photographed, and screened for the presence of VOCs using an FID, and metals with a hand-held XRF. **Appendix B** contains the test pit logs and digital imagery. Upon completion of the test pit activities, the excavated material was returned to the test pits.

Site 15

Eight test pits (IR15-TP01 through IR15-TP08) were excavated to depths ranging from 2 to 7 ft bgs to assess the boundaries of the former disposal area. The test pits were located near the approximate boundary of the geophysical survey in areas not previously delineated (**Figure 4-6**).

Several pieces of ceramic and a metal pipe were observed in IR15-TP04. Debris was not observed in remaining test pits and the test pit logs indicate the areas were composed of native material (**Figure 4-6**).

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Site 85

Four test pits (IR85-TP01 through IR85-TP04) were excavated to investigate for the presence of buried waste, including batteries (**Figure 4-7**). The depths of the test pits were generally 2 to 3 ft bgs, with a maximum depth of 6 ft bgs.

Batteries were noted on the ground surface at each test pit, but were not observed deeper than 2 ft bgs. The batteries matched the description of those historically disposed of at Site 85. A representative sample of the batteries (IR85-BAT) was collected and shipped to GPL for analysis of target analyte list (TAL) metals. When encountered, the batteries were separated from the excavated soils and placed in a 55-gallon drum for disposal. The soils were contained separately in 55-gallon drums. No other debris was encountered in the Site 85 test pits.

4.1.8 Quality Assurance/Quality Control Sampling

Quality assurance/quality control (QA/QC) samples were collected in the same types of preserved containers as the field samples. QA/QC requirements for environmental sampling, handling, and management are detailed in Section 3.18 of the Master Project Plans. Field QC samples, including field blanks, equipment blanks, duplicate samples, and matrix spike/matrix spike duplicate samples, were collected during the investigation and submitted for laboratory analysis. QC samples were collected at the following rates.

- One matrix spike/matrix spike duplicate per 20 samples collected
- One duplicate per 10 samples collected
- One equipment blank per day per media
- One trip blank per cooler containing bottleware for VOC analysis
- One field blank per week

4.2 Data Tracking and Validation

Field samples and their corresponding analytical tests were recorded on chain-of-custody (COC) forms, which were submitted with the samples to the laboratory. COC entries were checked against the *Work Plan* (CH2M HILL, 2009) to verify all designated samples were collected and submitted for the appropriate analyses. Upon receipt of the samples by the laboratories, a comparison to the field information was made to verify that each sample was analyzed for the correct parameters. In addition, a check was made to ensure that the proper number and types of QA/QC samples were collected. Analytical data reports, in hard copy and electronic format, were submitted for third-party validation using the *National Functional Guidelines for Superfund for Organic Methods Data Review* (EPA, 2008), and *National Functional Guidelines for Inorganic Data Review* (EPA, 2004). The electronic data was downloaded into a CH2M HILL database. These steps (third-party validation and electronic data handling) serve to reduce inherent uncertainties associated with data authenticity and usability.

4.3 Investigation-Derived Waste Management

Investigation-derived waste (IDW) generated during the investigation was managed in accordance with Section 3.17 of the Master Project Plans. IDW included soil, liquid waste (e.g., purged groundwater or decontamination fluids), batteries, and personal protective

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equipment (PPE). Soil and liquids were placed in DOT-approved 55-gallon drums, labeled, and staged for disposal. Samples were collected from the drummed IDW for characterization purposes. **Appendix C** contains the waste manifests for disposal of the batteries, soil and groundwater IDW generated during this investigation. Used PPE and trash were placed into opaque garbage bags and placed in an onsite dumpster.

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TABLE 4-1 Master Sampling Table Camp Johnson Construction Area Focused PA/SI Report MCB CampLej, North Carolina

Station ID	Sample ID	Total Metals 6010B	Total Dissolved Metals 6010B	Select Metals 6010B	Select Dissolved Metals 6010B	рН 9045	SVOCs 8270C	/OCs 8260B	Pest/PCBs 8081/8082	Sample Date	Sample Type
		ota	Fota	Sele	Sele	H B	3,0	ő	Pest		
	C	amp Jo		•				ndwate			
CJCA-TW01	CJCA-TW01-09C			Χ	Χ					28-Jul-09	N
CJCA-TW02	CJCA-TW02-09C			Χ						28-Jul-09	N
CJCA-TW02	CJCA-TW02-09C-MS			Χ						28-Jul-09	MS
CJCA-TW02	CJCA-TW02-09C-SD			Χ						28-Jul-09	SD
CJCA-TW03	CJCA-TW03-09C			Χ	Χ					28-Jul-09	N
CJCA-TW04	CJCA-TW04-09C			Χ						29-Jul-09	N
CJCA-TW04	CJCA-TW04-09C-MS			Χ						29-Jul-09	MS
CJCA-TW04	CJCA-TW04-09C-SD			Χ						29-Jul-09	SD
CJCA-TW05	CJCA-TW05-09C			Χ						28-Jul-09	N
CJCA-TW06	CJCA-TW06-09C			Χ						28-Jul-09	N
CJCA-TW08	CJCA-TW08-09C			Χ						27-Jul-09	N
CJCA-TW09	CJCA-TW09-09C			Χ						26-Jul-09	N
CJCA-TW10	CJCA-TW10-09C			Χ						27-Jul-09	N
CJCA-TW11	CJCA-TW11-09C			Χ						27-Jul-09	N
CJCA-TW12	CJCA-TW12-09C			Χ						26-Jul-09	N
CJCA-TW13	CJCA-TW13-09C			Χ						26-Jul-09	N
CJCA-TW14	CJCA-TW14-09C			Χ						26-Jul-09	N
CJCA-TW15	CJCA-TW15-09C			Χ						26-Jul-09	N
CJCA-TW15	CJCA-TW15D-09C			Χ						26-Jul-09	FD
CJCA-TW16	CJCA-TW16-09C			Χ						25-Jul-09	N
CJCA-TW17	CJCA-TW17-09C			Χ	Χ					24-Jul-09	N
CJCA-TW18	CJCA-TW18-09C			Χ						26-Jul-09	N
CJCA-TW19	CJCA-TW19-09C			Χ						26-Jul-09	N
CJCA-TW20	CJCA-TW20-09C			Χ						26-Jul-09	N
CJCA-TW21	CJCA-TW21-09C			Χ						26-Jul-09	N
CJCA-TW22	CJCA-TW22-09C			Χ	Χ					24-Jul-09	N
CJCA-TW23	CJCA-TW23-09C			Χ	Χ					23-Jul-09	N
CJCA-TW24	CJCA-TW24-09C			Χ						27-Jul-09	N
CJCA-TW24	CJCA-TW24D-09C			Χ						27-Jul-09	FD
CJCA-TW25	CJCA-TW25-09C			Χ						27-Jul-09	N
CJCA-TW26	CJCA-TW26-09C			Χ						27-Jul-09	N
CJCA-TW27	CJCA-TW27-09C			Χ	Χ					23-Jul-09	N
CJCA-TW28	CJCA-TW28-09C			Χ	Χ					23-Jul-09	N
CJCA-TW29	CJCA-TW29-09C			Χ						25-Jul-09	N
CJCA-TW29	CJCA-TW29-09C-MS			Χ						25-Jul-09	MS
CJCA-TW29	CJCA-TW29-09C-SD			Χ						25-Jul-09	SD
CJCA-TW30	CJCA-TW30-09C			Χ						25-Jul-09	N
CJCA-TW31	CJCA-TW31-09C			Χ	Χ					23-Jul-09	N
CJCA-TW32	CJCA-TW32-09C			Χ						25-Jul-09	N
CJCA-TW33	CJCA-TW33-09C			Χ						25-Jul-09	N

TABLE 4-1 Master Sampling Table Camp Johnson Construction Area Focused PA/SI Report MCB CampLej, North Carolina

Station ID	Sample ID	Total Metals 6010B	Total Dissolved Metals 6010B	Select Metals 6010B	Select Dissolved Metals 6010B	рН 9045	SVOCs 8270C	VOCs 8260B	Pest/PCBs 8081/8082	Sample Date	Sample Type
CJCA-TW34	CJCA-TW34-09C			Χ						25-Jul-09	N
CJCA-TW35	CJCA-TW35-09C			Χ	Χ					22-Jul-09	N
CJCA-TW35	CJCA-TW35D-09C			Χ	Χ					22-Jul-09	FD
CJCA-TW36	CJCA-TW36-09C			Χ	Χ					22-Jul-09	N
CJCA-TW37	CJCA-TW37-09C			Χ	Χ					22-Jul-09	N
CJCA-TW38	CJCA-TW38-09C	Χ	Χ							23-Jul-09	N
CJCA-TW38	CJCA-TW38-09C-MS	Χ	Χ							23-Jul-09	MS
CJCA-TW38	CJCA-TW38-09C-SD	Χ	Χ							23-Jul-09	SD
	Car	mp Joh	nson	Constr	uction	Area	Subsu	rface S	Soil		
CJCA-SB01	CJCA-SB01-2-7-09C			Χ						26-Jul-09	N
CJCA-SB02	CJCA-SB02-2-6-09C			Χ						29-Jul-09	N
CJCA-SB02	CJCA-SB02-2-6-09C-MS			Χ						29-Jul-09	MS
CJCA-SB02	CJCA-SB02-2-6-09C-SD			Χ						29-Jul-09	SD
CJCA-SB03	CJCA-SB03-2-7-09C			Χ		Χ				26-Jul-09	N
CJCA-SB04	CJCA-SB04-4-7-09C			Χ						29-Jul-09	N
CJCA-SB05	CJCA-SB05-2-7-09C			Χ						26-Jul-09	N
CJCA-SB06	CJCA-SB06-2-7-09C			Χ						29-Jul-09	N
CJCA-SB07	CJCA-SB07-4-7-09C			Χ						26-Jul-09	N
CJCA-SB08	CJCA-SB08-2-7-09C			Χ						29-Jul-09	N
CJCA-SB09	CJCA-SB09-2-4-09C			Χ						26-Jul-09	N
CJCA-SB09	CJCA-SB09D-2-4-09C			Χ						26-Jul-09	FD
CJCA-SB10	CJCA-SB10-2-6-09C			Χ						28-Jul-09	N
CJCA-SB11	CJCA-SB11-2-7-09C			Χ		Χ				26-Jul-09	N
CJCA-SB12	CJCA-SB12-2-7-09C			Χ						29-Jul-09	N
CJCA-SB13	CJCA-SB13-2-7-09C			Χ						26-Jul-09	N
CJCA-SB13	CJCA-SB13-2-7-09C-MS			Χ						26-Jul-09	MS
CJCA-SB13	CJCA-SB13-2-7-09C-SD			Χ						26-Jul-09	SD
CJCA-SB14	CJCA-SB14-2-7-09C			Χ						28-Jul-09	N
CJCA-SB15	CJCA-SB15-6-7-09C			Χ						25-Jul-09	N
CJCA-SB16	CJCA-SB16-2-7-09C			Χ						25-Jul-09	N
CJCA-SB18	CJCA-SB18-2-5-09C			Χ		Х				25-Jul-09	N
CJCA-SB19	CJCA-SB19-2-7-09C			Χ						28-Jul-09	N
CJCA-SB20	CJCA-SB20-2-7-09C			Χ						25-Jul-09	N
CJCA-SB20	CJCA-SB20D-2-7-09C			Χ						25-Jul-09	FD
CJCA-SB21	CJCA-SB21-2-7-09C			Χ						28-Jul-09	N
CJCA-SB22	CJCA-SB22-4-7-09C			Χ						25-Jul-09	N
CJCA-SB23	CJCA-SB23-2-3-09C			Χ						28-Jul-09	N
CJCA-SB24	CJCA-SB24-2-4-09C			Χ						24-Jul-09	N
CJCA-SB25	CJCA-SB25-6-7-09C			Χ						28-Jul-09	N
CJCA-SB26	CJCA-SB26-4-7-09C			Х						23-Jul-09	N

TABLE 4-1 Master Sampling Table Camp Johnson Construction Area Focused PA/SI Report MCB CampLej, North Carolina

Station ID	Sample ID	Total Metals 6010B	Total Dissolved Metals 6010B	Select Metals 6010B	Select Dissolved Metals 6010B	рн 9045	SVOCs 8270C	VOCs 8260B	Pest/PCBs 8081/8082	Sample Date	Sample Type
CJCA-SB27	CJCA-SB27-4-7-09C			Χ						28-Jul-09	N
CJCA-SB28	CJCA-SB28-2-4-09C			Χ						23-Jul-09	N
CJCA-SB29	CJCA-SB29-2-7-09C			Χ		Χ				28-Jul-09	N
CJCA-SB30	CJCA-SB30-2-7-09C			Χ						23-Jul-09	N
CJCA-SB31	CJCA-SB31-4-7-09C			Χ						23-Jul-09	N
CJCA-SB31	CJCA-SB31D-4-7-09C			Χ						23-Jul-09	FD
CJCA-SB32	CJCA-SB32-2-7-09C			Χ						22-Jul-09	N
CJCA-SB33	CJCA-SB33-4-6-09C			Χ						23-Jul-09	N
CJCA-SB34	CJCA-SB34-2-4-09C			Χ						28-Jul-09	N
CJCA-SB35	CJCA-SB35-2-4-09C			Χ						25-Jul-09	N
CJCA-SB35	CJCA-SB35-2-4-09C-MS			Χ						25-Jul-09	MS
CJCA-SB35	CJCA-SB35-2-4-09C-SD			Χ						25-Jul-09	SD
CJCA-SB36	CJCA-SB36-4-7-09C			Χ						28-Jul-09	N
CJCA-SB37	CJCA-SB37-6-7-09C			Χ						24-Jul-09	N
CJCA-SB38	CJCA-SB38-2-4-09C			Χ						24-Jul-09	N
CJCA-SB39	CJCA-SB39-2-4-09C			Χ						23-Jul-09	N
CJCA-SB40	CJCA-SB40-4-7-09C			Χ		Χ				28-Jul-09	N
CJCA-SB41	CJCA-SB41-4-6-09C			Χ						23-Jul-09	N
CJCA-SB42	CJCA-SB42-2-7-09C			Χ						28-Jul-09	N
CJCA-SB43	CJCA-SB43-6-7-09C			Χ						22-Jul-09	N
CJCA-SB44	CJCA-SB44-6-7-09C			Χ						23-Jul-09	N
CJCA-SB45	CJCA-SB45-2-5-09C			Χ						22-Jul-09	N
CJCA-SB45	CJCA-SB45D-2-5-09C			Χ						22-Jul-09	FD
CJCA-SB46	CJCA-SB46-4-7-09C			Χ						27-Jul-09	N
CJCA-SB46	CJCA-SB46-4-7-09C-MS			Χ						27-Jul-09	MS
CJCA-SB46	CJCA-SB46-4-7-09C-SD			Χ						27-Jul-09	SD
CJCA-SB47	CJCA-SB47-6-7-09C			Χ						25-Jul-09	N
CJCA-SB48	CJCA-SB48-4-6-09C			Χ		Χ				27-Jul-09	N
CJCA-SB49	CJCA-SB49-2-4-09C			Χ						25-Jul-09	N
CJCA-SB50	CJCA-SB50-4-6-09C			Χ						27-Jul-09	N
CJCA-SB50	CJCA-SB50D-4-6-09C			Χ						27-Jul-09	FD
CJCA-SB51	CJCA-SB51-2-7-09C			Χ						25-Jul-09	N
CJCA-SB52	CJCA-SB52-4-6-09C			Χ						27-Jul-09	N
CJCA-SB53	CJCA-SB53-2-7-09C			Χ		Х				22-Jul-09	N
CJCA-SB54	CJCA-SB54-6-7-09C			Χ						22-Jul-09	N
CJCA-SB54	CJCA-SB54-6-7-09C-MS			Х						22-Jul-09	MS
CJCA-SB54	CJCA-SB54-6-7-09C-SD			X						22-Jul-09	SD
CJCA-SB55	CJCA-SB55-4-6-09C			Х						22-Jul-09	N
CJCA-SB56 CJCA-SB57	CJCA-SB56-2-7-09C CJCA-SB57-2-4-09C			X						27-Jul-09 23-Jul-09	N N

TABLE 4-1 Master Sampling Table Camp Johnson Construction Area Focused PA/SI Report MCB CampLej, North Carolina

Station ID	Sample ID	Total Metals 6010B	Total Dissolved Metals 6010B	Select Metals 6010B	Select Dissolved Metals 6010B	рн 9045	SVOCs 8270C	VOCs 8260B	Pest/PCBs 8081/8082	Sample Date	Sample Type
CJCA-SB58	CJCA-SB58-2-6-09C			Χ		Χ				27-Jul-09	N
CJCA-SB59	CJCA-SB59-2-4-09C			Χ						23-Jul-09	N
CJCA-SB59	CJCA-SB59D-2-4-09C			Χ						23-Jul-09	FD
CJCA-SB60	CJCA-SB60-4-6-09C			Χ						22-Jul-09	N
CJCA-SB61	CJCA-SB61-2-4-09C			Χ						22-Jul-09	N
CJCA-SB62	CJCA-SB62-2-4-09C			Χ						22-Jul-09	N
CJCA-SB63	CJCA-SB63-2-4-09C			Χ						23-Jul-09	N
CJCA-SB64	CJCA-SB64-4-7-09C			Χ						27-Jul-09	N
CJCA-SB64	CJCA-SB64D-4-7-09C			Χ						27-Jul-09	FD
CJCA-SB65	CJCA-SB65-2-4-09C			Χ						22-Jul-09	N
CJCA-SB65	CJCA-SB65-2-4-09C-MS			Χ						22-Jul-09	MS
CJCA-SB65	CJCA-SB65-2-4-09C-SD			Χ						22-Jul-09	SD
CJCA-SB66	CJCA-SB66-4-6-09C			Χ						22-Jul-09	N
CJCA-SB67	CJCA-SB67-6-7-09C			Χ		Χ				22-Jul-09	N
CJCA-SB68	CJCA-SB68-4-6-09C			Χ						22-Jul-09	N
CJCA-SB69	CJCA-SB69-6-7-09C			Χ						21-Jul-09	N
CJCA-SB70	CJCA-SB70-4-6-09C			Χ						22-Jul-09	N
CJCA-SB70	CJCA-SB70D-4-6-09C			Χ						22-Jul-09	FD
CJCA-SB71	CJCA-SB71-6-7-09C			Χ						21-Jul-09	N
CJCA-SB72	CJCA-SB72-4-6-09C			Χ						21-Jul-09	N
CJCA-SB73	CJCA-SB73-4-6-09C			Χ		Χ				21-Jul-09	N
CJCA-SB74	CJCA-SB74-2-7-09C			Χ						21-Jul-09	N
CJCA-SB75	CJCA-SB75-4-6-09C			Χ						21-Jul-09	N
CJCA-SB76	CJCA-SB76-4-6-09C			Χ						21-Jul-09	N
CJCA-SB77	CJCA-SB77-2-4-09C			Χ						21-Jul-09	N
CJCA-SB78	CJCA-SB78-4-6-09C			Χ						21-Jul-09	N
	c	amp J	ohnso	n Cons	structio	on Are	a Surfa	ice So	il		
CJCA-SS001	CJCA-SS001-09C			Χ		Χ				7-Jul-09	N
CJCA-SS002	CJCA-SS002-09C			Χ						7-Jul-09	N
CJCA-SS003	CJCA-SS003-09C			Χ						7-Jul-09	N
CJCA-SS004	CJCA-SS004-09C			Х		Х				7-Jul-09	N
CJCA-SS005	CJCA-SS005-09C			Х						7-Jul-09	N
CJCA-SS006	CJCA-SS006-09C			Х						7-Jul-09	N
CJCA-SS007	CJCA-SS007-09C			Х						7-Jul-09	N
CJCA-SS008	CJCA-SS008-09C			X		Х				7-Jul-09	N
CJCA-SS009	CJCA-SS009-09C			X						7-Jul-09	N
CJCA-SS010	CJCA-SS010-09C			X						7-Jul-09	N
CJCA-SS011	CJCA-SS011-09C			X		Х				7-Jul-09	N
CJCA-SS012	CJCA-SS012-09C			X						7-Jul-09	N
CJCA-SS013	CJCA-SS013-09C			X						7-Jul-09	N
CJCA-SS014	CJCA-SS014-09C	1		Χ						7-Jul-09	N

TABLE 4-1 Master Sampling Table Camp Johnson Construction Area Focused PA/SI Report MCB CampLej, North Carolina

Station ID	Sample ID	Total Metals 6010B	Total Dissolved Metals 6010B	Select Metals 6010B	Select Dissolved Metals 6010B	рн 9045	SVOCs 8270C	VOCs 8260B	Pest/PCBs 8081/8082	Sample Date	Sample Type
CJCA-SS015	CJCA-SS015-09C			Х		Χ				7-Jul-09	N
CJCA-SS016	CJCA-SS016-09C			Χ						7-Jul-09	N
CJCA-SS017	CJCA-SS017-09C			Χ						7-Jul-09	N
CJCA-SS018	CJCA-SS018-09C			Χ						7-Jul-09	N
CJCA-SS019	CJCA-SS019-09C			Χ		Χ				7-Jul-09	N
CJCA-SS020	CJCA-SS020-09C			Χ						7-Jul-09	N
CJCA-SS021	CJCA-SS021-09C			Χ						7-Jul-09	N
CJCA-SS021	CJCA-SS021D-09C			Χ						7-Jul-09	FD
CJCA-SS022	CJCA-SS022-09C			Χ						7-Jul-09	N
CJCA-SS023	CJCA-SS023-09C			Χ						7-Jul-09	N
CJCA-SS023	CJCA-SS023-09C-MS			Χ						7-Jul-09	MS
CJCA-SS023	CJCA-SS023-09C-SD			Χ						7-Jul-09	SD
CJCA-SS024	CJCA-SS024-09C			Χ		Χ				8-Jul-09	N
CJCA-SS025	CJCA-SS025-09C			Χ						7-Jul-09	N
CJCA-SS026	CJCA-SS026-09C			Χ						7-Jul-09	N
CJCA-SS027	CJCA-SS027-09C			Χ						8-Jul-09	N
CJCA-SS028	CJCA-SS028-09C			Χ		Χ				7-Jul-09	N
CJCA-SS029	CJCA-SS029-09C			Χ						7-Jul-09	N
CJCA-SS030	CJCA-SS030-09C			Χ						7-Jul-09	N
CJCA-SS031	CJCA-SS031-09C			Χ						7-Jul-09	N
CJCA-SS032	CJCA-SS032-09C			Χ		Χ				8-Jul-09	N
CJCA-SS033	CJCA-SS033-09C			Χ						8-Jul-09	N
CJCA-SS034	CJCA-SS034-09C			Χ						8-Jul-09	N
CJCA-SS035	CJCA-SS035-09C			Χ						8-Jul-09	N
CJCA-SS036	CJCA-SS036-09C			Χ						8-Jul-09	N
CJCA-SS037	CJCA-SS037-09C			Χ						8-Jul-09	N
CJCA-SS038	CJCA-SS038-09C			Χ		Χ				8-Jul-09	N
CJCA-SS039	CJCA-SS039-09C			Χ						8-Jul-09	N
CJCA-SS040	CJCA-SS040-09C			Χ						8-Jul-09	N
CJCA-SS041	CJCA-SS041-09C			Χ						8-Jul-09	N
CJCA-SS041	CJCA-SS041D-09C			Χ						8-Jul-09	FD
CJCA-SS042	CJCA-SS042-09C			Χ						8-Jul-09	N
CJCA-SS042	CJCA-SS042-09C-MS			Χ						8-Jul-09	MS
CJCA-SS042	CJCA-SS042-09C-SD			Χ						8-Jul-09	SD
CJCA-SS043	CJCA-SS043-09C			Χ						8-Jul-09	N
CJCA-SS044	CJCA-SS044-09C			Χ						8-Jul-09	N
CJCA-SS044	CJCA-SS044-09C									8-Jul-09	N
CJCA-SS045	CJCA-SS045-09C			Χ						9-Jul-09	N
CJCA-SS045	CJCA-SS045-09C-MS			Χ						9-Jul-09	MS
CJCA-SS045	CJCA-SS045-09C-SD			Χ						9-Jul-09	SD
CJCA-SS046	CJCA-SS046-09C			Χ						8-Jul-09	N

TABLE 4-1 Master Sampling Table Camp Johnson Construction Area Focused PA/SI Report MCB CampLej, North Carolina

Station ID	Sample ID	Total Metals 6010B	Total Dissolved Metals 6010B	Select Metals 6010B	Select Dissolved Metals 6010B	рн 9045	SVOCs 8270C	VOCs 8260B	Pest/PCBs 8081/8082	Sample Date	Sample Type
CJCA-SS046	CJCA-SS046D-09C			Χ						8-Jul-09	FD
CJCA-SS047	CJCA-SS047-09C			Χ						8-Jul-09	N
CJCA-SS048	CJCA-SS048-09C									8-Jul-09	N
CJCA-SS048	CJCA-SS048-09C			Χ						8-Jul-09	N
CJCA-SS049	CJCA-SS049-09C			Χ						8-Jul-09	N
CJCA-SS049	CJCA-SS049-09C-MS			Χ						8-Jul-09	MS
CJCA-SS049	CJCA-SS049-09C-SD			Χ						8-Jul-09	SD
CJCA-SS050	CJCA-SS050-09C			Χ						8-Jul-09	N
CJCA-SS051	CJCA-SS051-09C			Χ						8-Jul-09	N
CJCA-SS052	CJCA-SS052-09C									8-Jul-09	N
CJCA-SS052	CJCA-SS052-09C			Χ						8-Jul-09	N
CJCA-SS053	CJCA-SS053-09C			Х						8-Jul-09	N
CJCA-SS053	CJCA-SS053D-09C			Х						8-Jul-09	FD
CJCA-SS054	CJCA-SS054-09C			Х						8-Jul-09	N
CJCA-SS054	CJCA-SS054D-09C			X						8-Jul-09	FD
CJCA-SS055	CJCA-SS055-09C			X						7-Jul-09	N
CJCA-SS056	CJCA-SS056-09C			X						7-Jul-09	N
CJCA-SS056	CJCA-SS056D-09C			X						7-Jul-09	FD
CJCA-SS057	CJCA-SS057-09C			X						7-Jul-09	N
CJCA-SS058	CJCA-SS058-09C			Χ						7-Jul-09	N
CJCA-SS058	CJCA-SS058-09C			V						7-Jul-09	N
CJCA-SS059	CJCA-SS059-09C			X						7-Jul-09	N N
CJCA-SS060	CJCA-SS060-09C									7-Jul-09	N N
CJCA-SS061 CJCA-SS062	CJCA-SS061-09C CJCA-SS062-09C			X						8-Jul-09 9-Jul-09	N N
CJCA-SS062 CJCA-SS063	CJCA-SS062-09C			^						9-Jul-09	N N
CJCA-SS063	CJCA-SS063-09C			Х						9-Jul-09	N
CJCA-SS064	CJCA-SS064-09C			X						9-Jul-09	N N
CJCA-SS065	CJCA-SS065-09C			X						9-Jul-09	N
CJCA-SS065	CJCA-SS065-09C			X						9-Jul-09	N N
CJCA-SS066	CJCA-SS066-09C			^						9-Jul-09	N
CJCA-SS067	CJCA-SS067-09C			Х						9-Jul-09	N
CJCA-SS068	CJCA-SS068-09C			- `						9-Jul-09	N
CJCA-SS068	CJCA-SS068-09C			Х						9-Jul-09	N
CJCA-SS069	CJCA-SS069-09C			X						9-Jul-09	N
CJCA-SS070	CJCA-SS070-09C			X						8-Jul-09	N
CJCA-SS070	CJCA-SS070D-09C			X						8-Jul-09	FD
CJCA-SS071	CJCA-SS071-09C			X						8-Jul-09	N
CJCA-SS072	CJCA-SS072-09C			Х						8-Jul-09	N
CJCA-SS073	CJCA-SS073-09C			X						8-Jul-09	N
CJCA-SS074	CJCA-SS074-09C			X						9-Jul-09	N

TABLE 4-1 Master Sampling Table Camp Johnson Construction Area Focused PA/SI Report MCB CampLej, North Carolina

Station ID	Sample ID	Total Metals 6010B	Total Dissolved Metals 6010B	Select Metals 6010B	Select Dissolved Metals 6010B	рН 9045	SVOCs 8270C	VOCs 8260B	Pest/PCBs 8081/8082	Sample Date	Sample Type
CJCA-SS074	CJCA-SS074-09C									9-Jul-09	N
CJCA-SS075	CJCA-SS075-09C			Х						9-Jul-09	N
CJCA-SS076	CJCA-SS076-09C			X						8-Jul-09	N
CJCA-SS077	CJCA-SS077-09C			X						9-Jul-09	N
CJCA-SS078	CJCA-SS078-09C			X						9-Jul-09	N
CJCA-SS079	CJCA-SS079-09C			X						8-Jul-09	N
CJCA-SS080	CJCA-SS080-09C			X						9-Jul-09	N
CJCA-SS080	CJCA-SS080D-09C			X						9-Jul-09	FD
CJCA-SS081	CJCA-SS081-09C			X						9-Jul-09	N
CJCA-SS081	CJCA-SS081-09C-MS	1		X						9-Jul-09	MS
CJCA-SS081	CJCA-SS081-09C-SD			X						9-Jul-09	SD
CJCA-SS082	CJCA-SS082-09C	1		Х						8-Jul-09	N
CJCA-SS083 CJCA-SS083	CJCA-SS083-09C	1		V						9-Jul-09	N N
	CJCA-SS083-09C	1		X						9-Jul-09	
CJCA-SS084	CJCA-SS084-09C	1								9-Jul-09	N N
CJCA-SS085	CJCA-SS085-09C	1		X						7-Jul-09	N N
CJCA-SS086 CJCA-SS086	CJCA-SS086-09C			^						7-Jul-09 7-Jul-09	N N
CJCA-SS087	CJCA-SS086-09C CJCA-SS087-09C			Х						7-Jul-09 7-Jul-09	N N
				X							N N
CJCA-SS088 CJCA-SS089	CJCA-SS088-09C CJCA-SS089-09C			X						7-Jul-09 7-Jul-09	N N
CJCA-SS099	CJCA-SS099-09C			X						7-Jul-09	N N
CJCA-SS090	CJCA-SS090-09C-MS			X						7-Jul-09	MS
CJCA-SS090	CJCA-SS090-09C-SD			X						7-Jul-09	SD
CJCA-SS090	CJCA-SS091-09C			X						7-Jul-09	N N
CJCA-SS092	CJCA-SS092-09C			X						7-Jul-09	N
CJCA-SS092	CJCA-SS092-09C									7-Jul-09	N
CJCA-SS092	CJCA-SS092D-09C									7-Jul-09	FD
CJCA-SS092	CJCA-SS092D-09C			Х						7-Jul-09	FD
CJCA-SS093	CJCA-SS093-09C			Х						7-Jul-09	N
CJCA-SS094	CJCA-SS094-09C			Х						7-Jul-09	N
CJCA-SS095	CJCA-SS095-09C			Х						7-Jul-09	N
CJCA-SS096	CJCA-SS096-09C			Х						7-Jul-09	N
CJCA-SS097	CJCA-SS097-09C			Х						7-Jul-09	N
CJCA-SS097	CJCA-SS097-09C									7-Jul-09	N
CJCA-SS098	CJCA-SS098-09C			Χ						7-Jul-09	N
CJCA-SS099	CJCA-SS099-09C			Χ						7-Jul-09	N
CJCA-SS100	CJCA-SS100-09C			Χ						9-Jul-09	N
CJCA-SS100	CJCA-SS100-09C									9-Jul-09	N
CJCA-SS101	CJCA-SS101-09C			Χ						9-Jul-09	N
CJCA-SS102	CJCA-SS102-09C			Χ						9-Jul-09	N

TABLE 4-1 Master Sampling Table Camp Johnson Construction Area Focused PA/SI Report MCB CampLej, North Carolina

Station ID	Sample ID	Total Metals 6010B	Total Dissolved Metals 6010B	Select Metals 6010B	Select Dissolved Metals 6010B	рн 9045	SVOCs 8270C	VOCs 8260B	Pest/PCBs 8081/8082	Sample Date	Sample Type
CJCA-SS103	CJCA-SS103-09C			Χ						9-Jul-09	N
CJCA-SS103	CJCA-SS103-09C									9-Jul-09	N
CJCA-SS104	CJCA-SS104-09C			Χ						9-Jul-09	N
CJCA-SS105	CJCA-SS105-09C			Χ						9-Jul-09	N
CJCA-SS105	CJCA-SS105D-09C			Χ						9-Jul-09	FD
CJCA-SS106	CJCA-SS106-09C			Χ						9-Jul-09	N
CJCA-SS106	CJCA-SS106-09C									9-Jul-09	N
CJCA-SS107	CJCA-SS107-09C			Χ						9-Jul-09	N
CJCA-SS108	CJCA-SS108-09C			Χ						9-Jul-09	N
CJCA-SS109	CJCA-SS109-09C			Χ						9-Jul-09	N
CJCA-SS110	CJCA-SS110-09C			Χ						8-Jul-09	N
CJCA-SS111	CJCA-SS111-09C			Χ						8-Jul-09	N
CJCA-SS112	CJCA-SS112-09C			Χ						9-Jul-09	N
CJCA-SS113	CJCA-SS113-09C			Х						8-Jul-09	N
CJCA-SS114	CJCA-SS114-09C			Х						8-Jul-09	N
CJCA-SS114	CJCA-SS114-09C-MS			Χ						8-Jul-09	MS
CJCA-SS114	CJCA-SS114-09C-SD			Х						8-Jul-09	SD
CJCA-SS115	CJCA-SS115-09C			Х						9-Jul-09	N
CJCA-SS116	CJCA-SS116-09C	-		X						8-Jul-09	N
CJCA-SS117	CJCA-SS117-09C	-		X						8-Jul-09	N
CJCA-SS118	CJCA-SS118-09C	-		X						9-Jul-09	N
CJCA-SS119	CJCA-SS119-09C			X						8-Jul-09	N
CJCA-SS120	CJCA-SS120-09C			Х						8-Jul-09	N
CJCA-SS121	CJCA-SS121-09C			X						8-Jul-09	N
CJCA-SS122	CJCA-SS122-09C			X						8-Jul-09	N
CJCA-SS123	CJCA-SS123-09C			X						8-Jul-09	N
CJCA-SS124	CJCA-SS124-09C			X						8-Jul-09	N
CJCA-SS125	CJCA-SS125-09C			X						8-Jul-09	N
CJCA-SS126	CJCA-SS126-09C	1		X						8-Jul-09	N
CJCA-SS127	CJCA-SS127-09C			X						9-Jul-09	N
CJCA-SS128	CJCA-SS128-09C			X						8-Jul-09	N
CJCA-SS129	CJCA-SS129-09C	1		X						9-Jul-09	N
CJCA-SS130	CJCA-SS130-09C			X						8-Jul-09	N
CJCA-SS130	CJCA-SS130D-09C			X		-				8-Jul-09	FD
CJCA-SS131	CJCA-SS131-09C			X		-				8-Jul-09	N
CJCA-SS132	CJCA-SS132-09C	1		X						8-Jul-09	N N
CJCA-SS133	CJCA-SS133-09C	1								8-Jul-09	N N
CJCA-SS134 CJCA-SS134	CJCA-SS134-09C	1		X						8-Jul-09	MS
	CJCA-SS134-09C-MS					-				8-Jul-09	
CJCA-SS134 CJCA-SS135	CJCA-SS134-09C-SD CJCA-SS135-09C	1		X						8-Jul-09 9-Jul-09	SD N

TABLE 4-1 Master Sampling Table Camp Johnson Construction Area Focused PA/SI Report MCB CampLej, North Carolina

Station ID	Sample ID	Total Metals 6010B	Total Dissolved Metals 6010B	Select Metals 6010B	Select Dissolved Metals 6010B	рн 9045	SVOCs 8270C	VOCs 8260B	Pest/PCBs 8081/8082	Sample Date	Sample Type
CJCA-SS136	CJCA-SS136-09C									9-Jul-09	N
CJCA-SS136	CJCA-SS136-09C			Х						9-Jul-09	N
CJCA-SS137	CJCA-SS137-09C			X						9-Jul-09	N
CJCA-SS138	CJCA-SS138-09C			X						9-Jul-09	N
CJCA-SS138	CJCA-SS138D-09C			X						9-Jul-09	FD
CJCA-SS139	CJCA-SS139-09C			X						9-Jul-09	N
CJCA-SS140	CJCA-SS140-09C			X						9-Jul-09	N
CJCA-SS140	CJCA-SS140D-09C			X						9-Jul-09	FD
CJCA-SS141	CJCA-SS141-09C			X						8-Jul-09	N
CJCA-SS142	CJCA-SS142-09C			X						9-Jul-09	N
CJCA-SS142	CJCA-SS142-09C-MS			X						9-Jul-09	MS
CJCA-SS142	CJCA-SS142-09C-SD			X						9-Jul-09	SD
CJCA-SS143	CJCA-SS143-09C			Χ						9-Jul-09	N
CJCA-SS144	CJCA-SS144-09C									8-Jul-09	N
CJCA-SS144	CJCA-SS144-09C			X						8-Jul-09	N
CJCA-SS145	CJCA-SS145-09C			X						9-Jul-09	N
CJCA-SS146	CJCA-SS146-09C			X						9-Jul-09	N
CJCA-SS147	CJCA-SS147-09C			X						9-Jul-09	N
CJCA-SS148	CJCA-SS148-09C			X						9-Jul-09	N MC
CJCA-SS148	CJCA-SS148-09C-MS			X						9-Jul-09	MS
CJCA-SS148	CJCA-SS148-09C-SD			X						9-Jul-09	SD FD
CJCA-SS148	CJCA-SS148D-09C			X						9-Jul-09	
CJCA-SS149	CJCA-SS149-09C			X						9-Jul-09	N N
CJCA-SS150 CJCA-SS151	CJCA-SS150-09C CJCA-SS151-09C			X						9-Jul-09 9-Jul-09	N N
CJCA-SS151 CJCA-SS152	CJCA-SS151-09C			X						10-Jul-09	N N
CJCA-SS152 CJCA-SS153	CJCA-SS152-09C			X						9-Jul-09	N N
CJCA-SS153 CJCA-SS154	CJCA-SS153-09C CJCA-SS154-09C			X						9-Jul-09 10-Jul-09	N N
CJCA-SS154 CJCA-SS155	CJCA-SS154-09C			X						9-Jul-09	N N
CJCA-SS155 CJCA-SS156	CJCA-SS155-09C			X						9-Jul-09 9-Jul-09	N N
CJCA-SS156 CJCA-SS156	CJCA-SS156-09C-MS			X						9-Jul-09 9-Jul-09	MS
CJCA-SS156 CJCA-SS156	CJCA-SS156-09C-MS	-		X						9-Jul-09 9-Jul-09	SD
CJCA-SS156 CJCA-SS157	CJCA-SS156-09C-SD			X						9-Jul-09 9-Jul-09	N SD
CJCA-SS157 CJCA-SS158	CJCA-SS157-09C CJCA-SS158-09C			^						9-Jul-09 9-Jul-09	N N
CJCA-SS156 CJCA-SS158	CJCA-SS158-09C			Х						9-Jul-09 9-Jul-09	N N
CJCA-SS156 CJCA-SS159	CJCA-SS159-09C			X						8-Jul-09	N N
CJCA-SS159	CJCA-SS159-09C			X						8-Jul-09	N N
CJCA-SS161	CJCA-SS161-09C			X						9-Jul-09	N N
CJCA-SS161 CJCA-SS162	CJCA-SS161-09C			X						8-Jul-09	N N
CJCA-SS162 CJCA-SS163	CJCA-SS162-09C			X						8-Jul-09	N N
CJCA-SS163	CJCA-SS163D-09C			X						8-Jul-09	FD

TABLE 4-1 Master Sampling Table Camp Johnson Construction Area Focused PA/SI Report MCB CampLej, North Carolina

Station ID	Sample ID	Total Metals 6010B	Total Dissolved Metals 6010B	Select Metals 6010B	Select Dissolved Metals 6010B	рн 9045	SVOCs 8270C	VOCs 8260B	Pest/PCBs 8081/8082	Sample Date	Sample Type
CJCA-SS164	CJCA-SS164-09C			Χ						9-Jul-09	N
CJCA-SS164	CJCA-SS164D-09C			Χ						9-Jul-09	FD
CJCA-SS165	CJCA-SS165-09C			Χ		Х				9-Jul-09	N
CJCA-SS166	CJCA-SS166-09C			Χ		Х				9-Jul-09	N
CJCA-SS167	CJCA-SS167-09C			Χ						9-Jul-09	N
CJCA-SS167	CJCA-SS167D-09C			Χ						9-Jul-09	FD
CJCA-SS168	CJCA-SS168-09C			Χ						8-Jul-09	N
CJCA-SS169	CJCA-SS169-09C			Χ						8-Jul-09	N
CJCA-SS170	CJCA-SS170-09C			Χ						9-Jul-09	N
CJCA-SS171	CJCA-SS171-09C			Χ						8-Jul-09	N
CJCA-SS172	CJCA-SS172-09C			Χ		Χ				8-Jul-09	N
CJCA-SS173	CJCA-SS173-09C			Χ						9-Jul-09	N
CJCA-SS174	CJCA-SS174-09C			Χ						8-Jul-09	N
CJCA-SS175	CJCA-SS175-09C			Χ						8-Jul-09	N
CJCA-SS175	CJCA-SS175D-09C			Χ						8-Jul-09	FD
CJCA-SS176	CJCA-SS176-09C			Χ						9-Jul-09	N
CJCA-SS176	CJCA-SS176D-09C			Χ						9-Jul-09	FD
CJCA-SS177	CJCA-SS177-09C			Χ						8-Jul-09	N
CJCA-SS178	CJCA-SS178-09C			Х						8-Jul-09	N
CJCA-SS179	CJCA-SS179-09C			Χ						8-Jul-09	N
CJCA-SS180	CJCA-SS180-09C			Χ						8-Jul-09	N
CJCA-SS181	CJCA-SS181-09C			Χ						8-Jul-09	N
CJCA-SS182	CJCA-SS182-09C			Х						8-Jul-09	N
CJCA-SS183	CJCA-SS183-09C			Χ						8-Jul-09	N
CJCA-SS184	CJCA-SS184-09C			Χ						8-Jul-09	N
CJCA-SS185	CJCA-SS185-09C			X		Х				9-Jul-09	N
CJCA-SS186	CJCA-SS186-09C			X						8-Jul-09	N
CJCA-SS186	CJCA-SS186D-09C			Х						8-Jul-09	FD
CJCA-SS187	CJCA-SS187-09C			X						8-Jul-09	N
CJCA-SS187	CJCA-SS187-09C-MS			X						8-Jul-09	MS
CJCA-SS187	CJCA-SS187-09C-SD			X						8-Jul-09	SD
CJCA-SS188	CJCA-SS188-09C			X		Х				9-Jul-09	N
CJCA-SS189	CJCA-SS189-09C			X						8-Jul-09	N
CJCA-SS190	CJCA-SS190-09C			X						8-Jul-09	N
CJCA-SS191	CJCA-SS191-09C			X		Х				9-Jul-09	N
CJCA-SS192	CJCA-SS192-09C			X						8-Jul-09	N
CJCA-SS193	CJCA-SS193-09C			X						8-Jul-09	N
CJCA-SS193	CJCA-SS193D-09C			X						8-Jul-09	FD
CJCA-SS194	CJCA-SS194-09C			X		Х				9-Jul-09	N
CJCA-SS194	CJCA-SS194-09C-MS			X						9-Jul-09	MS
CJCA-SS194	CJCA-SS194-09C-SD			Χ						9-Jul-09	SD

TABLE 4-1 Master Sampling Table Camp Johnson Construction Area Focused PA/SI Report MCB CampLej, North Carolina

Station ID	Sample ID	Total Metals 6010B	Total Dissolved Metals 6010B	Select Metals 6010B	Select Dissolved Metals 6010B	рН 9045	SVOCs 8270C	VOCs 8260B	Pest/PCBs 8081/8082	Sample Date	Sample Type
CJCA-SS195	CJCA-SS195-09C			Χ		Χ	Χ		Χ	9-Jul-09	N
CJCA-SS196	CJCA-SS196-09C			Χ						9-Jul-09	N
CJCA-SS197	CJCA-SS197-09C			Χ		Χ				9-Jul-09	N
CJCA-SS198	CJCA-SS198-09C			Χ		Χ				9-Jul-09	Ν
CJCA-SS199	CJCA-SS199-09C			Χ		Χ				9-Jul-09	N
CJCA-SS200	CJCA-SS200-09C			Χ						7-Jul-09	N
CJCA-SS201	CJCA-SS201-09C			Χ						7-Jul-09	N
CJCA-SS201	CJCA-SS201-09C-MS			Χ						7-Jul-09	MS
CJCA-SS201	CJCA-SS201-09C-SD			Χ						7-Jul-09	SD
CJCA-SS202	CJCA-SS202-09C			Χ						7-Jul-09	N
CJCA-SS203	CJCA-SS203-09C			Χ						7-Jul-09	N
CJCA-SS203	CJCA-SS203D-09C			Χ						7-Jul-09	FD
CJCA-SS204	CJCA-SS204-09C			Χ						7-Jul-09	N
CJCA-SS205	CJCA-SS205-09C			Χ						7-Jul-09	N
CJCA-SS205	CJCA-SS205-09C-MS			Χ						7-Jul-09	MS
CJCA-SS205	CJCA-SS205-09C-SD			Χ						7-Jul-09	SD
CJCA-SS206	CJCA-SS206-09C			Х						7-Jul-09	N
CJCA-SS207	CJCA-SS207-09C			Х						7-Jul-09	N
CJCA-SS208	CJCA-SS208-09C			X						7-Jul-09	N
CJCA-SS209	CJCA-SS209-09C			X		.,				7-Jul-09	N
CJCA-SS210	CJCA-SS210-09C			X		Χ				7-Jul-09	N
CJCA-SS211	CJCA-SS211-09C			X						7-Jul-09	N
CJCA-SS212	CJCA-SS212-09C			X		Χ				9-Jul-09	N
CJCA-SS213	CJCA-SS213-09C			X						7-Jul-09	N
CJCA-SS214	CJCA-SS214-09C			X	A === C		Ouglis	Cam	nal Dia	7-Jul-09	N
CJCA-QC	Camp John	ISUN C	onstru	_	nied 5	ampie	wualit	y Cont	i Oi Bia	21-Jul-09	EB
CJCA-QC CJCA-QC	CJCA-EB01-072109-IS CJCA-EB01-072509-IS			X						21-Jul-09 25-Jul-09	EB
CJCA-QC	CJCA-EB01-072609			X						26-Jul-09 26-Jul-09	EB
CJCA-QC	CJCA-EB01-072709-GW			X						27-Jul-09	EB
CJCA-QC	CJCA-EB01-072709-GW			X						29-Jul-09	EB
CJCA-QC	CJCA-EB01-072909-IS CJCA-EB02-072709-GW			X						27-Jul-09	EB
CJCA-QC	CJCA-EB02-072709-GW-MS			X						27-Jul-09	MS
CJCA-QC	CJCA-EB02-072709-GW-SD			X						27-Jul-09	SD
CJCA-QC	CJCA-EB02-072909-IS			X			Χ	Χ	Х	29-Jul-09	EB
CJCA-QC	CJCA-EB02-073009			X			X	X	X	30-Jul-09	EB
CJCA-QC	CJCA-EB03-072709-GW			X						27-Jul-09	EB
CJCA-QC	CJCA-EB070709			Х						7-Jul-09	EB
CJCA-QC	CJCA-EB070809			Х						8-Jul-09	EB
CJCA-QC	CJCA-EB070909			X						9-Jul-09	EB
CJCA-QC	CJCA-FB01-072109-IS			Х						21-Jul-09	FB

TABLE 4-1 Master Sampling Table Camp Johnson Construction Area Focused PA/SI Report MCB CampLej, North Carolina

Station ID	Sample ID	Total Metals 6010B	Total Dissolved Metals 6010B	Select Metals 6010B	Select Dissolved Metals 6010B	pH 9045	SVOCs 8270C	VOCs 8260B	Pest/PCBs 8081/8082	Sample Date	Sample Type
CJCA-QC	CJCA-FB01-072909			Х			Х	Х	Χ	29-Jul-09	FB
CJCA-QC	CJCA-TB02-072909							Χ		29-Jul-09	TB
CJCA-QC	CJCA-FB070709			Χ						7-Jul-09	FB
			_	Site 15	Groun	dwate					
IR15-TW01	IR15-TW01-09C	Х	X				Х	Х	Х	29-Jul-09	N
IR15-TW01	IR15-TW01-09C-MS		Х							29-Jul-09	MS
IR15-TW01	IR15-TW01-09C-SD		Х							29-Jul-09	SD
IR15-TW02	IR15-TW02-09C	X	Х				Х	X	Х	29-Jul-09	N
IR15-TW03	IR15-TW03-09C	X	Х					Х		28-Jul-09	N
IR15-TW03	IR15-TW03D-09C	X	X				.,	X	.,	28-Jul-09	FD
IR15-TW04	IR15-TW04-09C	Х	Х				Х	Х	Х	29-Jul-09	N
IR15-TW05	IR15-TW05-09C	Χ	Х					Χ		28-Jul-09	N
			Sit	te 15 S	ubsur	face So					
IR15-SB01	IR15-SB01-4-6-09C	Х				X	Х	Х	Х	29-Jul-09	N
IR15-SB02	IR15-SB02-2-7-09C	Χ				Х	Х	Х	Х	26-Jul-09	N
IR15-SB02	IR15-SB02D-2-7-09C	Х				Х	Х	X	Х	26-Jul-09	FD
IR15-SB03	IR15-SB03-2-7-09C	Х				Х	Х	Х	Х	29-Jul-09	N
IR15-SB04	IR15-SB04-2-7-09C	Х				Х	Х	X	X	27-Jul-09	N
IR15-SB05	IR15-SB05-2-7-09C	X				X	X	X	X	27-Jul-09	N
IR15-SB05	IR15-SB05-2-7-09C-MS	Х				Х	X	Х	Х	27-Jul-09	MS
IR15-SB05	IR15-SB05-2-7-09C-SD	X				X	X	X	X	27-Jul-09	SD
IR15-SB06	IR15-SB06-2-7-09C	X				X	X	X	X	27-Jul-09	N
IR15-SB07	IR15-SB07-2-4-09C	X				X	X	X	X	27-Jul-09	N
IR15-SB08	IR15-SB08-2-4-09C	X				X	X	X	X	29-Jul-09	N
IR15-SB09	IR15-SB09-2-7-09C	Х				Х	Х	Х	Х	29-Jul-09	N
IR15-SB10	IR15-SB10-2-4-09C	Χ				X	Х	Χ	Χ	29-Jul-09	N
ID45 0004	ID45 0004 00 04 000	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	- 1	oite 15	Surta	ce Soil		· ·	· ·	40 1 100	F.1
IR15-SS01	IR15-SS01-00-01-09C	X				X	X	X	X	10-Jul-09	N
IR15-SS02	IR15-SS02-00-01-09C	X				X	X	X	X	10-Jul-09	N
IR15-SS03	IR15-SS03-00-01-09C									10-Jul-09	N
IR15-SS03	IR15-SS03D-00-01-09C	X				X	X	X	X	10-Jul-09	FD N
IR15-SS04	IR15-SS04-00-01-09C						X	Х		10-Jul-09	
IR15-SS05 IR15-SS05	IR15-SS05-00-01-09C	X				X	X		X	10-Jul-09 10-Jul-09	N MS
IR15-SS05	IR15-SS05-00-01-09C-MS	X				X	X		X	10-Jul-09 10-Jul-09	MS SD
IR15-SS05 IR15-SS06	IR15-SS05-00-01-09C-SD IR15-SS06-00-01-09C	X				X	X	Х	X	10-Jul-09 10-Jul-09	N N
IR15-SS07	IR15-SS06-00-01-09C	X				X	X	X	X	10-Jul-09 10-Jul-09	N N
IR15-SS08	IR15-SS07-00-01-09C	X				X	X	X	X	10-Jul-09 10-Jul-09	N N
IR15-SS08	IR15-SS08-00-01-09C	X				X	X	X	X	10-Jul-09 10-Jul-09	N N
	IR15-SS10-00-01-09C	X				X	X	X	X	10-Jul-09	N N
IR15-SS10	11/10-0010-01-09C	^				_ ^	_ ^	^	^	าบานเาบซ	IN .

TABLE 4-1 Master Sampling Table Camp Johnson Construction Area Focused PA/SI Report MCB CampLej, North Carolina

	Sample ID	Total Metals 6010B	Total Dissolved Metals 6010B	Select Metals 6010B	Select Dissolved Metals 6010B	pH 9045	SVOCs 8270C	VOCs 8260B	Pest/PCBs 8081/8082	Sample Date	Sample Typ
			Site 1	5 Qua	lity Co	ntrol B	lanks				
Site15-QC	IR15-EB071009	Χ				Χ	Χ	Χ	X	10-Jul-09	EB
Site15-QC	IR15-FB071009	Χ				Х	Χ	Χ	Χ	10-Jul-09	FB
Site15-QC	IR15-TB01-072609							Χ		26-Jul-09	TB
Site15-QC	IR15-TB01-072709							Χ		27-Jul-09	ТВ
Site15-QC	IR15-TB01-072809							Χ		28-Jul-09	ТВ
Site15-QC	IR15-TB01-072909							Χ		29-Jul-09	TB
			5	Site 17	Groun	dwate	r				
IR17-TW01	IR17-TW01-09C-MS	Χ								29-Jul-09	MS
IR17-TW01	IR17-TW01-09C-SD	Χ								29-Jul-09	SD
IR17-TW02	IR17-TW02-09C	Χ	Χ				Χ	Χ	Χ	29-Jul-09	N
IR17-TW02	IR17-TW02D-09C	Χ	Χ				Χ	Χ	Χ	29-Jul-09	FD
			Sit	te 17 S	ubsur	face So	oil				
IR17-SB01	IR17-SB01-2-4-09C	Χ				Χ	Χ	Χ	Χ	27-Jul-09	N
IR17-SB03	IR17-SB03-2-7-09C	Χ				Х		Χ	Х	28-Jul-09	N
IR17-SB03	IR17-SB03D-2-7-09C	Χ				Х	Χ	Χ	Х	28-Jul-09	FD
IR17-SB04	IR17-SB04-2-7-09C	Χ				Х	Χ	Χ	Χ	28-Jul-09	N
IR17-SB05	IR17-SB05-2-7-09C	Χ				Х	Χ	Χ	Х	28-Jul-09	N
			,	Site 17	Surfa	ce Soil					
IR17-SS01	IR17-SS01-00-01-09C	Χ				Χ	Χ	Χ	Х	10-Jul-09	N
IR17-SS01	IR17-SS01D-00-01-09C	Χ				Χ	Χ	Χ	X	10-Jul-09	FD
IR17-SS02	IR17-SS02-00-01-09C	Χ				Χ	Χ	Χ	Χ	10-Jul-09	N
IR17-SS03	IR17-SS03-00-01-09C	Χ				Χ	Χ	Χ	X	10-Jul-09	N
IR17-SS04	IR17-SS04-00-01-09C	Χ				Χ	Χ	Χ	Х	10-Jul-09	N
IR17-SS05	IR17-SS05-00-01-09C	Χ				Χ	Χ	Χ	Χ	10-Jul-09	N
IR17-SS05	IR17-SS05-00-01-09C-MS	Χ				Χ	Χ	Χ	Х	10-Jul-09	MS
IR17-SS05	IR17-SS05-00-01-09C-SD	Χ				Χ	Χ	Χ	X	10-Jul-09	SD
			Site 1	7 Qual	ity Co	ntrol B	lanks				
Site17-QC	IR17-EB071009	Χ				Χ	Χ	Χ	Χ	10-Jul-09	EB
Site17-QC	IR17-FB071009	Χ				Χ	Χ	Χ	Χ	10-Jul-09	FB
Site17-QC	IR17-TB01-072809							Χ		28-Jul-09	TB
Site17-QC	IR17-TB02-072809							Χ		28-Jul-09	TB
Site17-QC	IR17-TB071009							Χ		10-Jul-09	TB
			5	Site 85	Groun	dwate					
IR85-MW01	IR85-MW01-09C	Χ					Χ	Χ	Χ	23-Jul-09	N
IR85-MW02	IR85-MW02-09C	Χ					Χ	Χ	Χ	23-Jul-09	N
IR85-MW04	IR85-MW04-09C	Χ					Χ	Χ	Χ	22-Jul-09	N
IR85-MW04	IR85-MW04-09C-MS	Χ					Χ	Χ	Χ	22-Jul-09	MS
IR85-MW04	IR85-MW04-09C-SD	Χ					Χ	Χ	Χ	22-Jul-09	SD
IR85-MW05 IR85-TW04	IR85-MW05-09C IR85-TW04-09C	X	Х				X	X	X	21-Jul-09 27-Jul-09	N N

TABLE 4-1 Master Sampling Table Camp Johnson Construction Area Focused PA/SI Report MCB CampLej, North Carolina

Station ID	Sample ID	Total Metals 6010B	Total Dissolved Metals 6010B	Select Metals 6010B	Select Dissolved Metals 6010B	рн 9045	SVOCs 8270C	VOCs 8260B	Pest/PCBs 8081/8082	Sample Date	Sample Type
IR85-TW05	IR85-TW05-09C	Χ	Χ				Χ	Χ	Χ	29-Jul-09	N
IR85-TW06	IR85-TW06-09C	Χ	Χ				Χ	Χ	Χ	30-Jul-09	N
IR85-TW06	IR85-TW06D-09C	Х	Χ				Χ	Χ	X	30-Jul-09	FD
IR85-TW06	IR85-TW06D-09C-MS		Χ							30-Jul-09	MS
IR85-TW06	IR85-TW06D-09C-SD		Χ							30-Jul-09	SD
IR85-TW07	IR85-TW07-09C	Χ	Χ				Χ	Χ	Χ	30-Jul-09	N
IR85-TW08	IR85-TW08-09C	Χ	Χ				Χ	Χ	Χ	30-Jul-09	N
			Sit	te 85 S	ubsur	face So	oil				
IR85-SB06	IR85-SB06-2-7-09C	Χ				Χ	Χ	Χ	Χ	29-Jul-09	N
IR85-SB06	IR85-SB06-2-7-09C-MS	Х				Χ	Χ	Χ	Х	29-Jul-09	MS
IR85-SB06	IR85-SB06-2-7-09C-SD	Χ				Χ	Χ	Χ	Χ	29-Jul-09	SD
IR85-SB07	IR85-SB07-2-4-09C	Χ				Χ	Χ	Χ	Χ	28-Jul-09	N
IR85-SB08	IR85-SB08-2-7-09C	Χ				Χ	Χ	Χ	Χ	29-Jul-09	N
IR85-SB09	IR85-SB09-2-7-09C	Χ				Χ	Χ	Χ	Χ	27-Jul-09	N
IR85-SB10	IR85-SB10-4-7-09C	Х				Χ	Χ	Χ	X	29-Jul-09	N
IR85-SB11	IR85-SB11-2-7-09C	Χ				Χ	Χ	Χ	Χ	29-Jul-09	N
IR85-SB12	IR85-SB12-2-7-09C	Χ					Χ	Χ	Χ	28-Jul-09	N
IR85-SB13	IR85-SB13-2-7-09C	Χ				Х	Χ	Χ	Χ	28-Jul-09	N
IR85-SB14	IR85-SB14-2-7-09C	Χ				Х	Χ	Χ	Χ	29-Jul-09	N
IR85-SB17	IR85-SB17-6-7-09C	Χ				Χ	Χ	Χ	Χ	28-Jul-09	N
IR85-SB17	IR85-SB17D-6-7-09C	Χ				Χ	Χ	Χ	Χ	28-Jul-09	FD
			Si	te 85 E	Battery	Samp	le				
IR85-BAT	IR85-BAT-071009	Χ								10-Jul-09	N
				Site 85	Surfa	ce Soil					
IR85-SS06	IR85-SS06-00-01-09C	Χ				Χ	Χ	Χ	Χ	9-Jul-09	N
IR85-SS07	IR85-SS07-00-01-09C	Χ				Χ	Χ	Χ	Χ	9-Jul-09	N
IR85-SS08	IR85-SS08-00-01-09C	Χ				Χ	Χ	Χ	Χ	9-Jul-09	N
IR85-SS09	IR85-SS09-00-01-09C	Χ				Х	Χ	Х	Χ	10-Jul-09	N
IR85-SS09	IR85-SS09D-00-01-09C	Χ				Χ	Χ	Χ	Χ	10-Jul-09	FD
IR85-SS10	IR85-SS10-00-01-09C	Χ				Х	Χ	Χ	Χ	10-Jul-09	N
IR85-SS11	IR85-SS11-00-01-09C	Χ				Χ	Χ	Χ	Χ	10-Jul-09	N
IR85-SS12	IR85-SS12-00-01-09C	Χ				Χ	Χ	Χ	Χ	10-Jul-09	N
IR85-SS13	IR85-SS13-00-01-09C	X				Х	X	Х	Х	10-Jul-09	N
IR85-SS14	IR85-SS14-00-01-09C	X				Х	Х	X	Х	10-Jul-09	N
IR85-SS14	IR85-SS14D-00-01-09C	X				Х	Х	X	Х	10-Jul-09	FD
IR85-SS15	IR85-SS15-00-01-09C	X				Х	Х	X	Х	10-Jul-09	N
IR85-SS16	IR85-SS16-00-01-09C	X				X	X	X	X	10-Jul-09	N
IR85-SS17	IR85-SS17-00-01-09C	X				X	X	X	X	10-Jul-09	N
IR85-SS18	IR85-SS18-00-01-09C	Χ				Х	Χ	Χ	Χ	10-Jul-09	N

TABLE 4-1 Master Sampling Table Camp Johnson Construction Area Focused PA/SI Report MCB CampLej, North Carolina

Station ID	Sample ID	Total Metals 6010B	Total Dissolved Metals 6010B	Select Metals 6010B	Select Dissolved Metals 6010B	рН 9045	SVOCs 8270C	VOCs 8260B	Pest/PCBs 8081/8082	Sample Date	Sample Type
IR85-SS18	IR85-SS18-00-01-09C-MS	Χ				Χ	Χ	Χ	Χ	10-Jul-09	MS
IR85-SS18	IR85-SS18-00-01-09C-SD	Χ				Χ	Χ	Χ	Χ	10-Jul-09	SD
			Site 8	5 Qual	ity Co	ntrol B	lanks				
Site85-QC	IR85-EB01-073009	Χ					Χ	Χ	Χ	30-Jul-09	EB
Site85-QC	IR85-EB070909	Χ					Χ	Χ	Χ	9-Jul-09	EB
Site85-QC	IR85-EB071009	Χ					Χ	Χ	Χ	10-Jul-09	EB
Site85-QC	IR85-FB070909	Χ					Χ	Χ	Χ	9-Jul-09	FB
Site85-QC	IR85-TB01-072109							Χ		21-Jul-09	TB
Site85-QC	IR85-TB01-072209							Χ		22-Jul-09	TB
Site85-QC	IR85-TB01-072309							Χ		23-Jul-09	TB
Site85-QC	IR85-TB01-072809							Χ		28-Jul-09	TB
Site85-QC	IR85-TB070909							Χ		9-Jul-09	TB
Site85-QC	IR85-TB071009							Χ		10-Jul-09	TB
Site85-QC	IR85-TB073009							Χ		30-Jul-09	TB

TABLE 4-2 Summary of Water Quality Data Camp Johnson Construction Area Focused PA/SI Report MCB CamLej, North Carolina

Well ID	Date	Sample Time	Temp. (°C)	Cond. (mS/cm)	DO (mg/L)	pH (SU)	ORP (mV)	Turbidity (NTU)
CJCA - TW01	7/28/2009	10:55	18.50	0.066	0.32	4.73	-66	Out of range
CJCA - TW02	7/28/2009	10:20	19.00	0.481*	0.00	7.89	-30	3.4
CJCA - TW03	7/28/2009	12:10	17.81	0.072*	1.28	6.63	114	390.0
CJCA - TW04	7/29/2009	11:10	20.25	1.14*	3.18	6.91	49	4.1
CJCA - TW05	7/28/2009	8:55	17.80	0.509*	1.71	6.17	164	1.5
CJCA - TW06	7/28/2009	9:00	18.24	0.063	3.58	4.88	87	26.0
CJCA - TW08	7/27/2009	10:20	20.15	1.28	0.00	7.99	-59	3.9
CJCA - TW09	7/26/2009	15:40	19.57	56.9	0.45	6.28	46	1.2
CJCA - TW10	7/27/2009	12:15	21.03	0.108	0.15	7.59	-108	13.0
CJCA - TW11	7/27/2009	15:40	19.97	0.095	1.00	6.58	24	1.8
CJCA - TW12	7/26/2009	13:50	18.85	2.96	0.54	6.29	66	1.1
CJCA - TW13	7/26/2009	14:35	19.44	0.062	1.73	5.59	-65	10.0
CJCA - TW14	7/26/2009	14:00	19.28	0.063	4.01	5.32	-66	3.3
CJCA - TW15	7/26/2009	13:15	19.90	0.080	4.30	4.33	199	4.3
CJCA - TW16	7/25/2009	17:05	20.04	0.064	3.66	4.10	157	3.2
CJCA - TW17	7/24/2009	8:35	19.46	0.103	6.21	6.05	93	220.0
CJCA - TW18	7/26/2009	11:05	18.33	0.061	0.91	5.38	-80	7.0
CJCA - TW19	7/26/2009	11:00	19.15	3.09	0.92	6.90	16	2.8
CJCA - TW20	7/26/2009	10:15	18.69	0.070	2.37	4.57	141	4.2
CJCA - TW21	7/26/2009	9:20	19.99	0.128	6.05	6.55	49	5.2
CJCA - TW22	7/24/2009	11:50	18.98	0.068	0.00	7.64	-51	11.0
CJCA - TW23	7/23/2009	14:30	19.97	1.18	0.90	4.51	215	7.2
CJCA - TW24	7/27/2009	9:25	18.72	0.068	3.90	5.10	-12	2.8
CJCA - TW25	7/27/2009	10:25	18.39	0.074	3.21	5.06	-2	4.0
CJCA - TW26	7/27/2009	12:05	19.43	0.060	2.99	5.58	-7	85.0
CJCA - TW27	7/23/2009	16:20	19.48	0.349	1.89	5.85	147	350.0
CJCA - TW28	7/23/2009	16:50	20.97	0.820	2.99	4.39	90	10.6
CJCA - TW29	7/25/2009	16:45	20.04	0.109	5.09	6.99	45	10.0
CJCA - TW30	7/25/2009	18:10	19.91	8.04	0.18	7.24	3	27.0
CJCA - TW31	7/23/2009	15:20	20.31	0.527	2.26	5.58	-18	80.0
CJCA - TW32	7/25/2009	13:30	19.20	0.018	4.80	4.27	72	110.0
CJCA - TW33	7/25/2009	17:20	18.48	0.061	4.74	4.95	-8	35.0
CJCA - TW34	7/25/2009	13:20	19.29	0.091	2.24	6.02	198	210.0
CJCA - TW35	7/22/2009	16:00	19.18	0.136	6.40	3.92	218	10.0
CJCA - TW36	7/22/2009	9:30	18.25	0.230	0.29	7.08	-97	6.1
CJCA - TW37	7/22/2009	16:40	19.56	0.999	5.56	5.31	103	31.0
CJCA - TW38	7/23/2009	13:15	19.07	0.055	0.40	4.59	-8	10.0
IR15 - TW01	7/28/2009	8:25	20.14	1.04*	1.13	7.91	-21	1.7
IR15 - TW02	7/29/2009	10:25	18.10	0.058	4.82	4.56	124	9.5
IR15 - TW03	7/28/2009	14:05	19.28	0.149*	4.17	6.79	99	2.5
IR15 - TW04	7/29/2009	8:45	18.71	0.193	1.76	6.13	-88	15.0
IR15 - TW05	7/28/2009	16:20	21.62	0.151	6.54	6.05	128	35.0
IR17 - TW01	7/29/2009	14:20	18.90	0.059	2.28	4.94	110	16.0
IR17 - TW02	7/29/2009	15:05	18.79	0.678*	3.88	6.27	151	90.0
IR85 - MW01	7/23/2009		18.07	0.219		4.25	240	2.1
IR85 - MW02	7/23/2009	9:40	18.74	0.053	2.74	4.18	349	9.8
IR85 - MW04	7/22/2009	11:00	18.37	0.90	0.25	4.16	144	4.0
IR85 - MW05	7/21/2009	17:20	17.54	1.49	7.15	3.90	203	5.5
IR85 - TW04	7/27/2009	16:30	18.73	0.038	1.26	4.95	166	21.0
IR85 - TW05	7/29/2009	12:30	19.14	0.038	2.20	4.99	90	4.2
IR85 - TW06	7/30/2009	9:43	19.14	0.061	3.04	5.81	-36	370.0
IR85 - TW07	7/30/2009	9:43	19.60	0.713	4.16	5.68	208	3.0
IR85 - TW07	7/30/2009	12:00	19.49	4.25	0.17	6.63	119	450.0
11100 - 17700	1730/2009	12.00	13.10	4.20	0.17	0.03	119	450.0

Notes:

°C=degrees celcius

mS/cm=microsiemens per centimeter

DO=dissolved oxygen

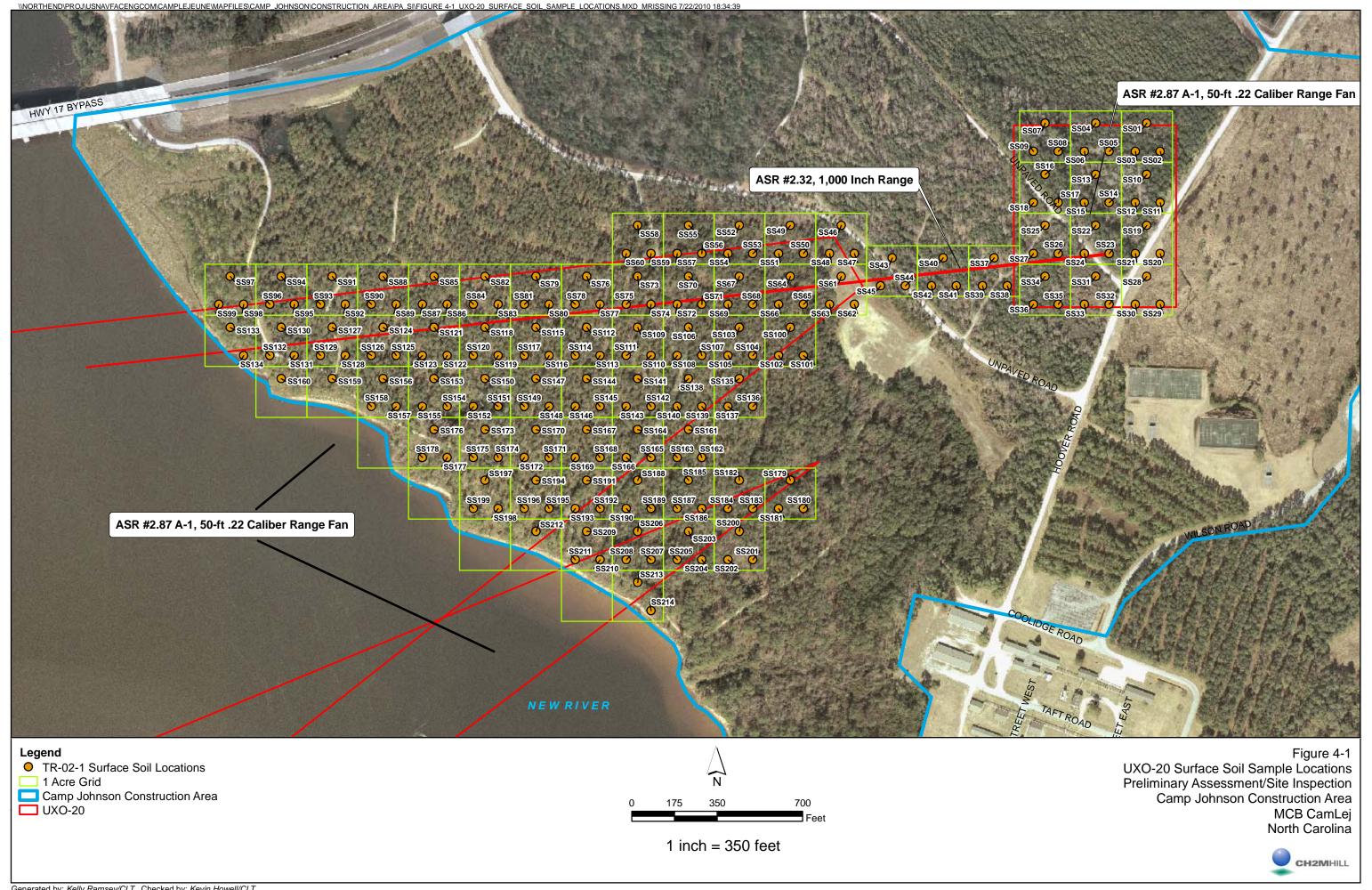
mg/L=milligrams per liter

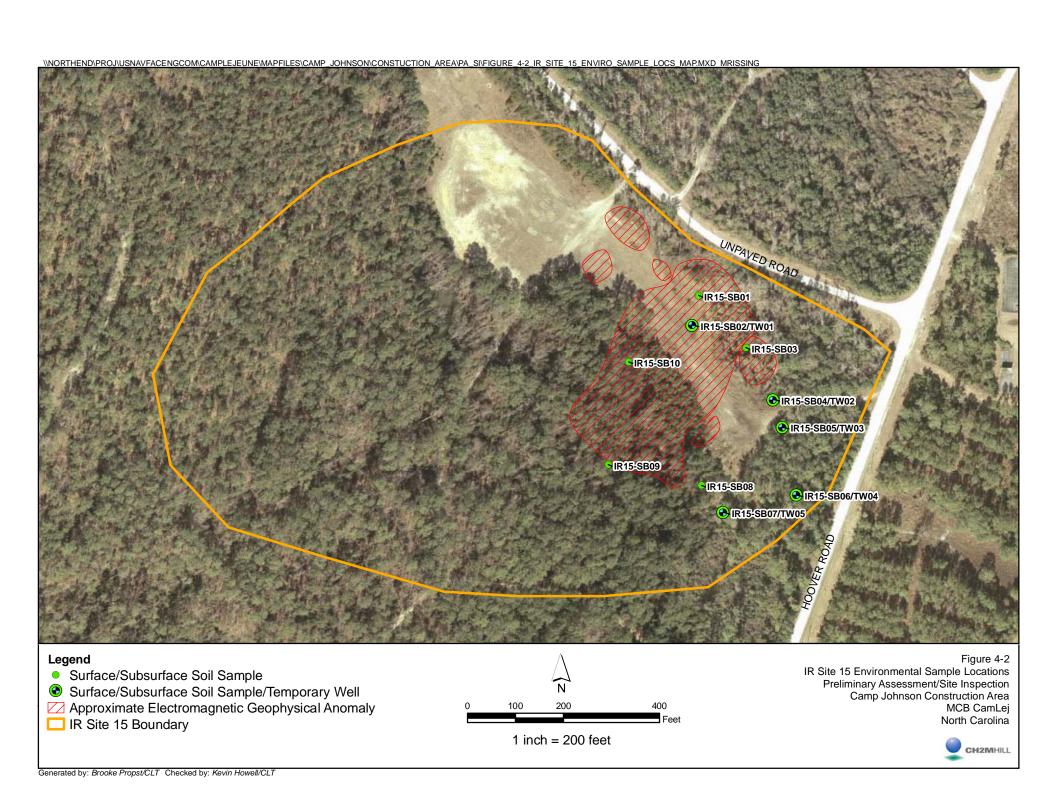
ORP=oxidation-reduction potential

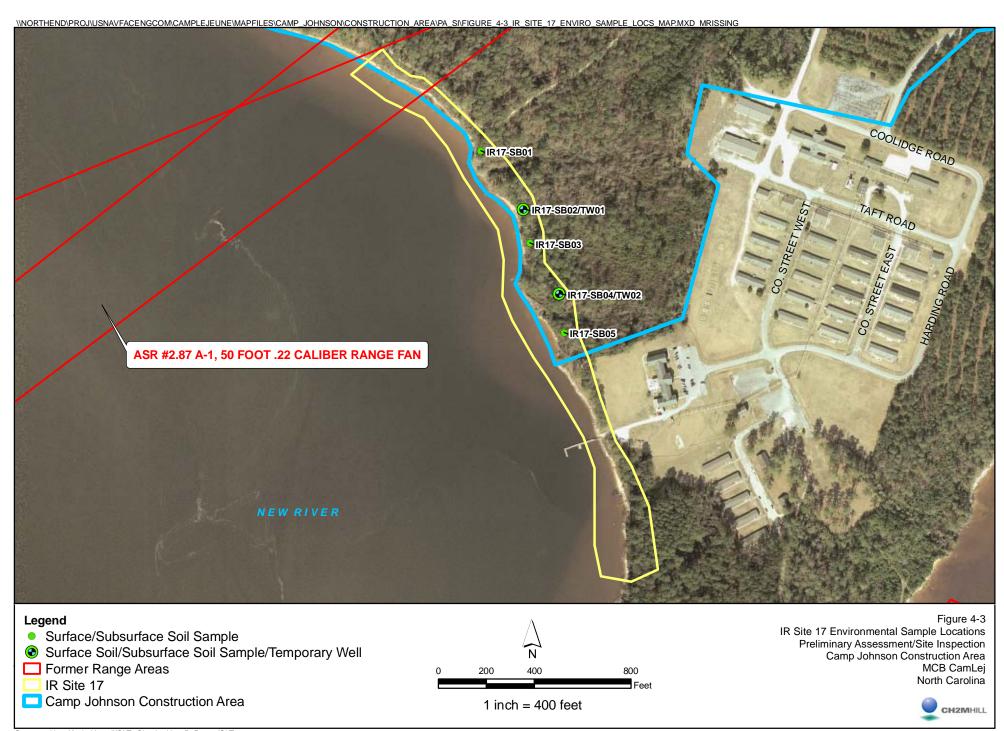
mV=millivolts

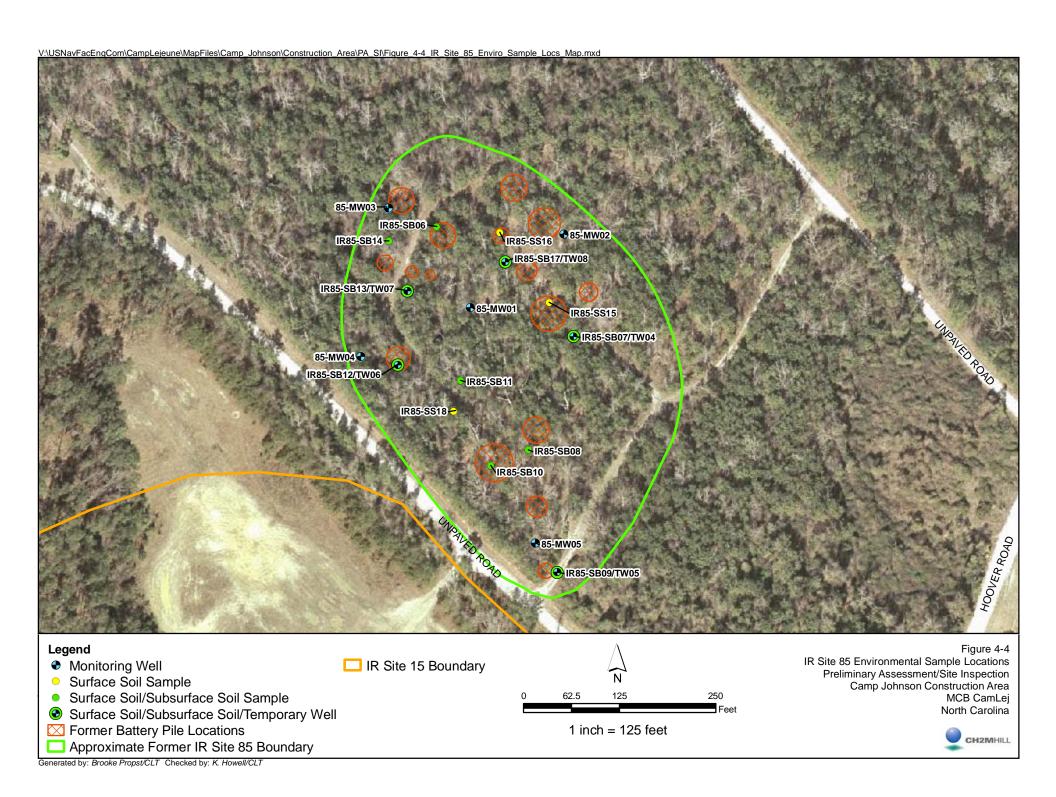
NTU=nepheometric turbidity units

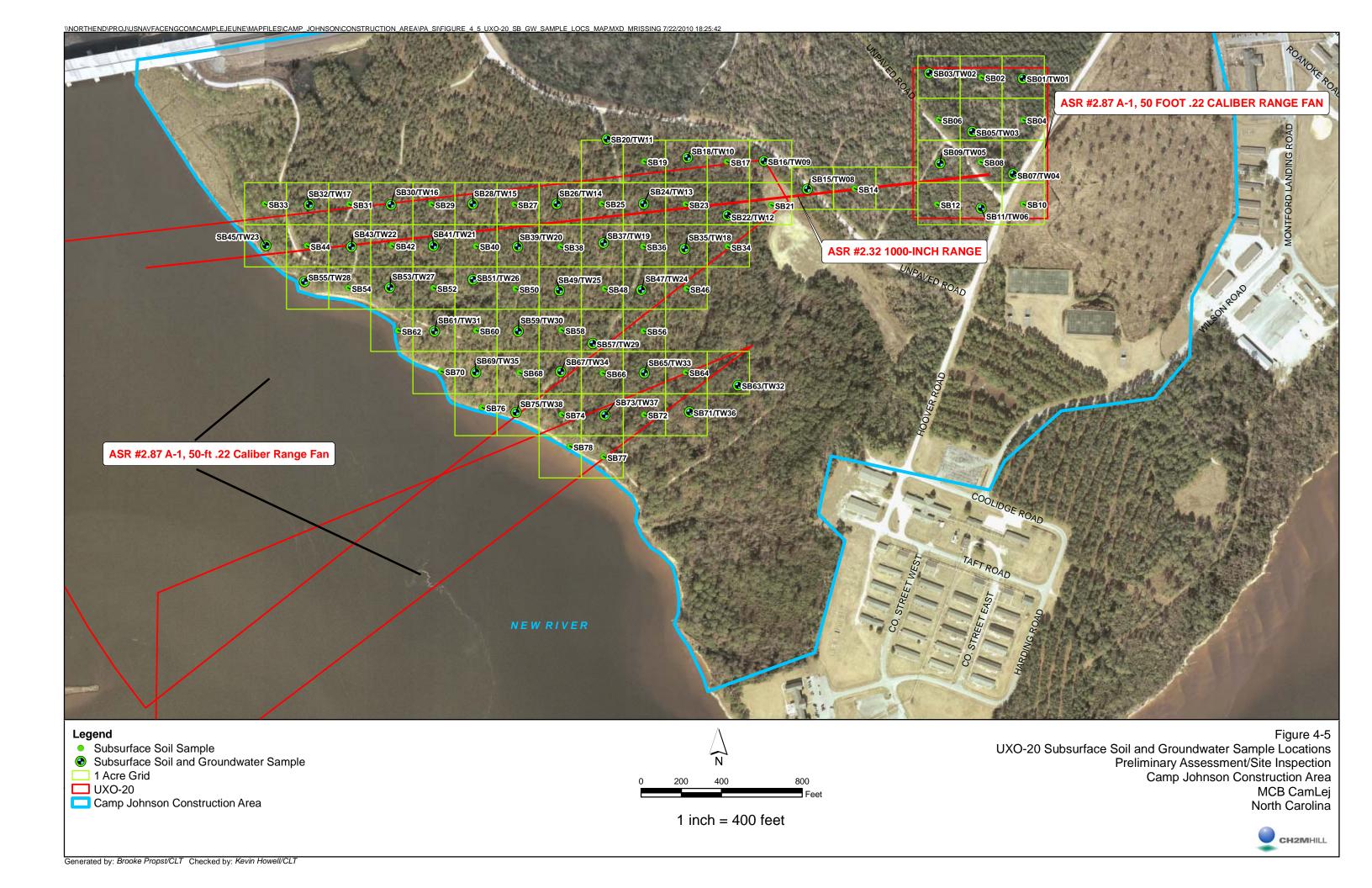
^{*}water quality meter calibrated out of range.

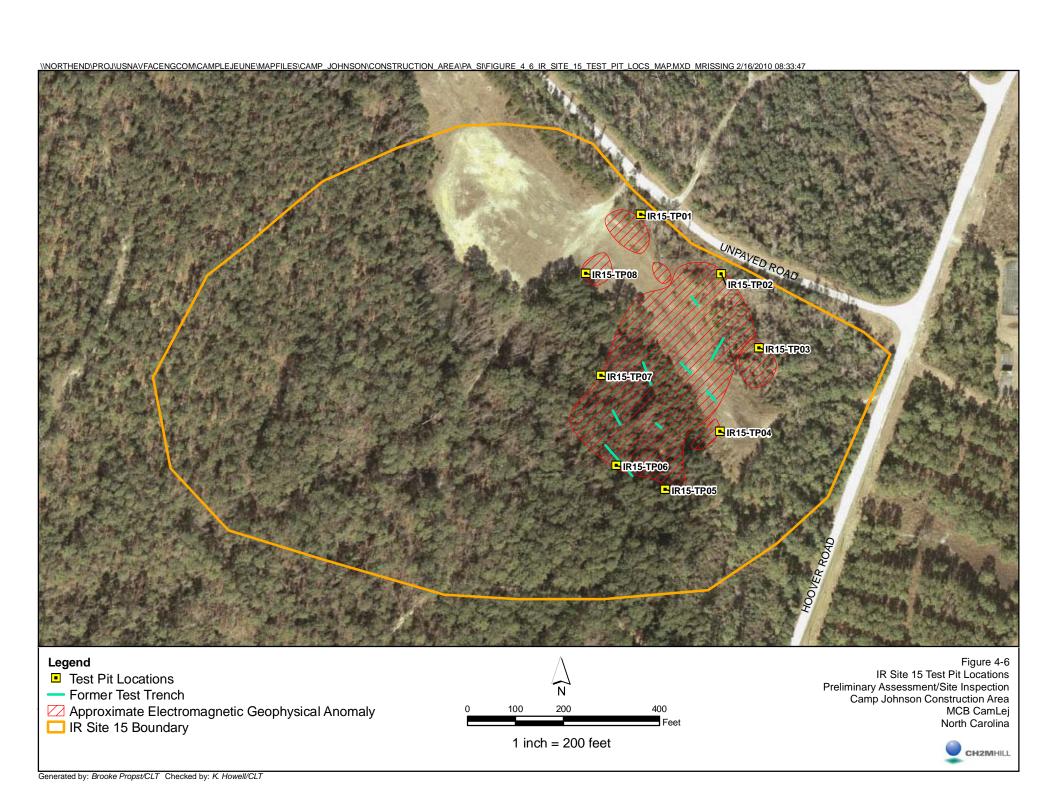


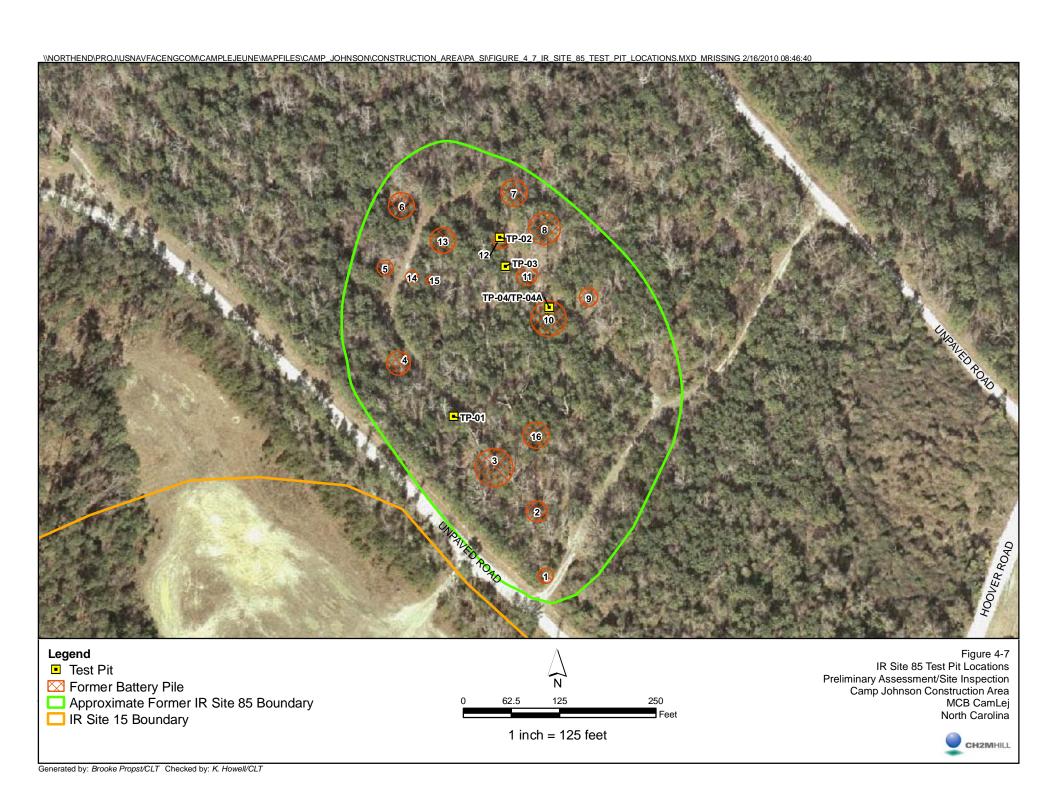












Results

The following subsections present and summarize the findings of the field investigation discussed in Section 4. The laboratory analytical test results for surface soil, subsurface soil, and groundwater for the CJCA are presented in this section. Laboratory analytical reports and COC records are provided in **Appendix D**.

5.1 UXO 20

5.1.1 Surface Soil

The analytical data for the 214 surface soil samples collected from UXO-20 are presented in **Tables 5-1a** and **5-1b** (due to the size of the data set). **Figure 5-1** illustrates the distribution of the sample locations where target analytes exceeded the North Carolina Soil Screening Limits (NCSSLs), EPA Adjusted Residential Regional Screening Levels (RSLs), and/or EPA Adjusted Industrial RSLs and twice the mean Base background. The EPA Residential/Industrial RSLs are adjusted for non-cancer causing compounds to account for exposure to multiple constituents.

- Arsenic was detected in 201 surface soil samples at concentrations ranging from
 0.22 mg/kg (CJCA-SS22) to 6.9 mg/kg (CJCA-SS136). The concentration of arsenic
 detected in 136 of the surface soil samples exceeded the EPA Adjusted Residential RSL
 and twice the mean Base background. Arsenic was also reported to exceed the EPA
 Adjusted Industrial RSL and twice the mean Base background in 25 surface soil samples.
 Arsenic was detected at concentrations exceeding the NCSSL and twice the mean Base
 background in surface soil samples collected from CJCA-SS72 and CJCA-SS136.
- No other metals were detected at concentrations exceeding regulatory screening criteria and twice the Base background.

5.1.2 Subsurface Soil

The analytical data for the 77 subsurface soil samples collected from UXO-20 are presented in **Table 5-2**. **Figure 5-2** illustrates the distribution of the sample locations where target analytes exceeded the North Carolina Soil Screening Limits (NCSSLs), EPA Adjusted RSLs, and/or EPA Adjusted Industrial RSLs and twice the mean Base background.

- Arsenic was detected in 68 subsurface soil samples at concentrations ranging from 0.17 mg/kg (CJCA-SB014) to 46.5 mg/kg (CJCA-SB71). The concentrations of arsenic detected in 15 samples exceeded the EPA Adjusted RSLs and twice the mean Base background. Arsenic concentrations detected in 15 subsurface soil samples exceeded the NCSSL and twice the mean Base background concentration.
- No other metals were detected at concentrations exceeding regulatory screening criteria and twice the mean Base background.

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5.1.3 Groundwater

Analytical data for the 37 groundwater samples collected from UXO-20 are presented in **Table 5-3**. **Figure 5-2** illustrates the distribution of the sample locations where target analytes exceeded the lower of the NCGWQS and maximum contaminant levels (MCLs) and/or EPA Adjusted tap water RSLs, and twice the mean Base background..

- Arsenic was detected in 12 groundwater samples at concentrations ranging from 2.2J micrograms per liter ($\mu g/L$) (CJCA-TW08) to 9.4J $\mu g/L$ (CJCA-TW27). The concentration of arsenic detected in the groundwater samples collected from CJCA-TW27 and CJCA-TW30 exceeded the EPA Adjusted Tap Water RSL and twice the mean Base background.
- Lead was detected in 12 groundwater samples at concentrations ranging from 2 μ g/L (CJCA-TW26 and CJCA-TW36) to 19.1 μ g/L (CJCA-TW01). The concentration of lead detected in the groundwater sample collected from CJCA-TW01 exceeded the NCGWQS and twice the mean Base background concentration.

5.2 IR Site 15

5.2.1 Surface Soil

Analytical data for the 10 surface soil samples collected from Site 15 are presented in **Table 5-4**. **Figure 5-3** illustrates the distribution of the sample locations where target analytes exceeded the NCSSLs, EPA Adjusted RSLs, and/or EPA Adjusted Industrial RSLs and twice the mean Base background.

- VOCs and SVOCs were not detected at concentrations exceeding NCSSLs or EPA RSLs in surface soil samples collected at Site 15.
- One PCB, aroclor-1254, was detected at a concentration exceeding the EPA Adjusted Industrial RSL in the surface soil sample collected at IR15-SS01.
- Concentrations of dieldrin were detected above the NCSSL at surface soil sample locations IR15-SS09 and IR15-SS10. However, the detected concentrations did not exceed the EPA Adjusted RSLs.
- Aluminum was detected in the 10 surface soil samples at concentrations ranging from 1,150 mg/kg (IR15-SS05) to 12,500 mg/kg (IR15-SS03). The concentration of aluminum was detected above the EPA Adjusted Residential RSL and twice the mean Base background in the surface soil sample collected from IR15-SS03.
- Arsenic was detected in the 10 surface soil samples at concentrations ranging from 0.24 mg/kg (IR15-SS05) to 4.7 mg/kg (IR15-SS03). Concentrations of arsenic exceeding EPA Adjusted Residential RSL and twice the mean Base background were reported at surface soil sample locations IR15-SS02 and IR15-SS04. The concentration of arsenic reported in surface soil samples collected from IR15-SS01, IR15-SS03, IR15-SS08, IR15-SS09, and IR15-SS10 exceeded the EPA Adjusted Industrial RSL and twice the mean Base background concentration.

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- Chromium was detected in the 10 surface soil samples at concentrations ranging from 1.7 mg/kg (IR15-SS05) to 17.2 mg/kg (IR15-SS03), and exceeded the EPA Adjusted RSLs, the NCSSL, and twice the mean Base background, at surface soil sample locations IR15-SS01, IR15-SS03, IR15-SS08, IR15-SS09, and IR15-SS10.
- Iron was detected in the 10 surface soil samples at concentrations ranging from 903 mg/kg (IR15-SS06) to 10,200 mg/kg (IR15-SS03). Concentrations of iron detected at surface soil sample locations IR15-SS01, IR15-SS03, IR15-SS08, IR15-SS09, and IR15-SS10 exceeded the NCSSL and twice the mean Base background. Iron was reported at concentrations exceeding the EPA Adjusted Residential RSL and twice the mean Base background at surface soil sample locations IR15-SS03 and IR15-SS09.
- No other metals were detected at concentrations exceeding regulatory screening criteria and twice the mean Base background.

5.2.2 Subsurface Soil

Analytical data from the 10 subsurface soil samples collected from IR15 are presented in **Table 5-5**. **Figure 5-3** illustrates the distribution of the sample locations where target analytes exceeded the NCSSLs, EPA Adjusted RSLs, and/or EPA Adjusted Industrial RSLs and twice the mean Base background.

- VOCs, SVOCs, or PCBs were not detected in subsurface soil samples at concentrations exceeding regulatory screening criteria.
- One pesticide, dieldrin, was detected above the NCSSL in subsurface soil sample IR15-SB05 at a concentration of 2.3 micrograms per kilogram ($\mu g/kg$).
- Arsenic was detected in nine subsurface soil samples at concentrations ranging from 0.38 mg/kg (IR15-SB06) to 16.6 mg/kg (IR15-SB09). The arsenic concentration detected in subsurface soil sample IR15-SB09 exceeded the NCSSL, the EPA Adjusted RSLs, and twice the mean Base background.
- Chromium was detected in the 10 subsurface soil samples at concentrations ranging from 1.1 mg/kg (IR15-SB08) to 52.4 mg/kg (IR15-SB09). The concentration of chromium detected in subsurface soil sample IR15-SB09 exceeded the NCSSL, the EPA Adjusted Industrial RSL, and twice the mean Base background.
- Iron was detected in the 10 subsurface soil samples at concentrations ranging from 153 mg/kg (IR15-SB08) to 179,000 mg/kg (IR15-SB09). Concentrations of iron reported in subsurface soil samples collected at IR15-SB01 and IR15-SB09 exceeded the NCSSL, the EPA Adjusted Residential RSL, and twice the mean Base background. Additionally, the iron concentration detected at IR15-SB09 exceeded the EPA Adjusted Industrial RSL.
- Lead was detected in the 10 subsurface soil samples at concentrations ranging from 2.7 mg/kg (IR15-SB06) to 483 mg/kg (IR15-SB01). The concentration of lead detected in subsurface soil sample IR15-SB01 exceeded the NCSSL, the EPA Adjusted Residential RSL, and twice the mean Base background.
- Manganese was detected in the 10 subsurface soil samples at concentrations ranging from 1.5 mg/kg (IR15-SB08) to 626 mg/kg (IR15-SB09), and exceeded the NCSSL and

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twice the mean Base background at subsurface soil sample locations IR15-SB01 and IR15-SB09.

5.2.3 Groundwater

- Analytical data for the five groundwater samples collected at Site 15 are presented in Table 5-6. Figure 5-3 illustrates the distribution of the sample locations where target analytes exceeded the lower of the NCGWQS and maximum contaminant levels (MCLs) and/or EPA Adjusted tap water RSLs, and twice the mean Base background. VOCs, SVOCs, organochlorine pesticides (OCPs), and PCBs were not detected in the groundwater samples above the regulatory screening criteria.
- Chromium was detected in two groundwater samples at concentrations of 1.7J μ g/L (IR15-TW03) and 5J μ g/L (IR15-TW05). The sample collected from IR15-TW05 exceeded the EPA Adjusted Tap Water RSL and twice the Base background.
- Iron was detected in the five groundwater samples at concentrations ranging from 1,040 μ g/L (IR15-TW05) to 25,800 μ g/L (IR15-TW01), and exceeded, the NCGWQS, the EPA Adjusted Tap Water, and twice the mean Base background in the groundwater samples collected from IR15-TW01, IR15-TW03, and IR15-TW04.
- Manganese was detected in the five groundwater samples at concentrations ranging from 5.2 μ g/L (IR15-TW05) to 439 μ g/L (IR15-TW01). The sample collected from IR15-TW01 exceeded the NCGWQS, the EPA Adjusted Tap Water RSL, and twice the mean Base background.

5.3 IR Site 17

5.3.1 Surface Soil

Analytical data for the five surface soil samples collected from Site 17 are presented in **Table 5-7. Figure 5-4** illustrates the distribution of the sample locations where target analytes exceeded the NCSSLs, EPA Adjusted RSLs, and/or EPA Adjusted Industrial RSLs and twice the mean Base background.

- VOCs, SVOCs, OCPs, and PCBs were not detected at concentrations exceeding NCSSLs or EPA RSLs.
- Arsenic was detected in the five surface soil samples at concentrations ranging from 1.1 mg/kg (IR17-SS05) to 4.9 mg/kg (IR17-SS01), and exceeded the EPA Adjusted Residential RSL and twice the mean Base background. Arsenic was also detected at concentrations exceeding the EPA Adjusted Industrial RSL and twice the Base background at soil sample locations IR17-SS01, IR17-SS03, and IR17-SS04.
- Chromium was detected in five surface soil samples at concentrations ranging from 2.7 mg/kg (IR17-SS05) to 8.5 mg/kg (IR17-SS01). The chromium concentration detected in surface soil sample IR17-SS01 exceeded the NCSSL, EPA Adjusted RSLs, and twice the mean Base background.
- Iron was detected in the five surface soil samples at concentrations ranging from 1,670 mg/kg (IR17-SS04) to 7,640 mg/kg (IR17-SS01), but exceeded the EPA Adjusted

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Residential RSL, the NCSSL, and twice the mean Base background in the surface soil sample collected from IR17-SS01.

• No other metals concentrations exceeded the regulatory criteria and twice the mean Base background.

5.3.2 Subsurface Soil

Analytical data for the five subsurface soil samples collected at Site 17 are presented in **Table 5-8. Figure 5-4** illustrates the distribution of the sample locations where target analytes exceeded the NCSSLs, EPA Adjusted RSLs, and/or EPA Adjusted Industrial RSLs and twice the mean Base background.

- SVOCs, OCPs, and PCBs were not detected at concentrations exceeding regulatory criteria.
- One VOC (1,2-dibromo-3-chloropropane) was detected at a concentration of 1.6 μ g/kg in the soil sample collected from IR17-SB01, which exceeded the NCSSL.
- Aluminum was detected in the five subsurface soil samples at concentrations ranging from 4,270 mg/kg (IR17-SB02) to 20,000 mg/kg (IR17-SB03), and exceeded the EPA Adjusted Residential RSL and twice the mean Base background in the subsurface soil samples collected from IR17-SB01 and IR17-SB03.
- Arsenic was detected in the five subsurface soil samples at concentrations ranging from 0.95 mg/kg (IR17-SB04) to 14.4 mg/kg (IR17-SB03). The concentrations of arsenic detected in subsurface soil samples collected at IR17-SB01, IR17-SB03, and IR17-SB04 exceeded the EPA Adjusted Industrial RSL and twice the mean Base background. Arsenic was also detected at concentrations above the NCSSL in the subsurface soil samples collected from IR17-SB01 and IR17-SB03.
- Chromium was detected in the five subsurface soil samples at concentrations ranging from 4.7 mg/kg (IR17-SB02) to 35.8 mg/kg (IR17-SB03) and exceeded the EPA Adjusted RSLs, the NCSSL, and twice the mean Base background at subsurface soil sample locations IR17-SB01 and IR17-SB03.
- Iron was detected in the five subsurface soil samples at concentrations ranging from 2,240 mg/kg (IR17-SB02) to 28,400 mg/kg (IR17-SB03). The concentrations of iron were reported to exceed the EPA Adjusted Residential RSL, the NCSSL, and twice mean Base background at subsurface soil sample locations IR17-SB01, IR17-SB03, and IR17-SB05.

5.3.3 Groundwater

The analytical data for the two groundwater samples collected at Site 17 are presented in **Table 5-9. Figure 5-4** illustrates the distribution of the sample locations where target analytes exceeded the lower of the NCGWQS and maximum contaminant levels (MCLs) and/or EPA Adjusted tap water RSLs, and twice the mean Base background.

• One VOC, methylene chloride, was detected in the groundwater sample collected from IR17-TW01 at a concentration of $4.4 \,\mu\text{g/L}$, exceeding the EPA Adjusted Tap water RSL.

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- SVOCs, OCPs, or PCBs were not detected in the groundwater samples at concentrations exceeding regulatory screening criteria.
- Metals were not detected in the groundwater samples at concentrations exceeding both twice the Base background and regulatory screening criteria.

5.4 IR Site 85

5.4.1 Surface Soil

Analytical data for the 13 surface soil samples collected at Site 85 are presented in **Table 5-10. Figure 5-5** illustrates the distribution of the sample locations where target analytes exceeded the NCSSLs, EPA Adjusted RSLs, and/or EPA Adjusted Industrial RSLs and twice the mean Base background.

- VOCs, SVOCs, or PCBs were not detected at concentrations exceeding NCSSLs or EPA Adjusted RSLs.
- One OCP, dieldrin, was detected at a concentration above the NCSSL in the surface soil sample collected from IR85-SS17 (1.9 μ g/kg).
- Antimony was detected in one surface soil sample (IR85-SS18) at a concentration of 5.9 mg/kg, exceeding twice the Base background and the EPA Adjusted Residential RSL.
- Arsenic was detected in 13 surface soil samples at concentrations ranging from 0.57 mg/kg (IR85-SS13) to 9.9 mg/kg (IR85-SS17). The concentration of arsenic was detected at concentrations exceeding the EPA Adjusted Residential RSL and twice the mean Base background in surface soil samples collected from IR85-SS06, IR85-SS07, IR85-SS08, IR85-SS09, IR85-SS10, IR85-SS11, IR85-SS12, IR85-SS14, and IR85-SS15. Arsenic was also reported at concentrations exceeding the EPA Adjusted Industrial RSL and twice the mean Base background in two surface soil samples, IR85-SS16 and IR85-SS18. The concentration of arsenic detected in the surface soil sample collected from IR85-SS17 exceeded the NCSSL and twice the mean Base background.
- Cadmium was detected in three surface soil samples at concentrations ranging from 0.59 mg/kg (IR85-SS15) to 3.5 mg/kg (IR85-SS18), and exceeded the NCSSL and twice the mean Base background surface soil sample collected from IR85-SS18.
- Chromium was detected in 12 surface soil samples at concentrations ranging from 2.7 mg/kg (IR85-SS09) to 8.5 mg/kg (IR85-SS18), and exceeded the NCSSL and twice the mean Base background in surface soil sample IR85-SS18.
- Iron was detected in 13 surface soil samples at concentrations ranging from 1,690 mg/kg (IR85-SS07) to 11,500 mg/kg (IR85-SS18). The concentrations of iron exceeded NCSSL and twice the mean Base background in surface soil samples collected from IR85-SS14, IR85-SS16, IR85-SS17, and IR85-SS18. Iron was also reported above the EPA Adjusted Residential RSL in surface soil sample IR85-SS18.
- Lead was detected in 13 surface soil samples at concentrations ranging from 4.8 mg/kg (IR85-SS06) to 614 mg/kg (IR85-SS18), and exceeded the EPA Adjusted Residential RSL,

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NCSSL, and twice the mean Base background in the surface soil sample collected from IR85-SS18.

- Manganese was detected in the 13 surface soil samples at concentrations ranging from 5.9 mg/kg (IR85-SS11) to 10, 700 mg/kg (IR85-SS17). Detected concentrations of manganese exceeded the EPA Adjusted Residential RSL, NCSSL, and twice the mean Base background in surface soil samples collected from IR85-SS15, IR85-SS16, IR85-SS17, and IR85-SS18. The concentration of manganese detected in the surface soil sample collected from IR85-SS17 also exceeded the EPA Adjusted Industrial RSL.
- Mercury was detected in 11 surface soil samples at concentrations ranging from 0.037 (IR85-SS09) to 8.8 mg/kg (IR85-SS18). Concentrations of mercury detected in surface soil samples IR85-SS15, IR85-SS17, and IR85-SS18 exceeded the NCSSL and twice the mean Base background. Mercury concentrations detected in surface soil samples IR85-SS17 and IR85-SS18 also exceeded the EPA Adjusted Residential RSL.
- Thallium was detected in two surface soil samples, IR85-SS16 (0.44 J mg/kg) and IR85-SS17 (18.7J mg/kg), and exceeded the EPA Adjusted Industrial RSL and twice the mean Base background in surface soil sample IR85-IS17.
- Zinc was detected in 11 surface soil samples at concentrations ranging from 4.2 mg/kg (IR85-SS11) to 5,600 mg/kg (IR85-SS17). Concentrations of zinc exceeded the NCSSL and twice the mean Base background in two surface soil samples, IR85-SS17 and IR85-SS18. The concentration of zinc detected in surface soil sample IR85-SS17 also exceeded the EPA Adjusted Residential RSL.

5.4.2 Subsurface Soil

Analytical data for the 12 subsurface soil samples collected at Site 85 are presented in **Table 5-11. Figure 5-5** illustrates the distribution of the sample locations where target analytes exceeded the NCSSLs, EPA Adjusted RSLs, and/or EPA Adjusted Industrial RSLs and twice the mean Base background.

- SVOCs, OCPs, or PCBs were not detected at concentrations exceeding regulatory criteria.
- One VOC (1,2-dibromo-3-chloropropane) was detected at a concentration of $2.4 \,\mu g/kg$ in the subsurface soil sample collected from IR85-SB11, exceeding the NCSSL.
- Aluminum was detected in 10 subsurface soil samples at concentrations ranging from 2,560 mg/kg (IR85-SB17) to 12,000 mg/kg (IR85-SB09). The concentration of aluminum detected in sample IR85-SB09 exceeded the EPA Adjusted Residential RSL and twice the mean Base background.
- Arsenic was detected in 10 subsurface soil samples at concentrations ranging from 0.68J mg/kg (IR85-SB10) to 2.3 mg/kg (IR85-SB07). The concentration of arsenic detected in sample IR85-SB07 exceeded the EPA Adjusted Industrial RSL and twice the mean Base background.

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5.4.3 Groundwater

Analytical data for the nine groundwater samples collected at Site 85 are presented in **Table 5-12. Figure 5-5** illustrates the distribution of the sample locations where target analytes exceeded the lower of the NCGWQS and maximum contaminant levels (MCLs) and/or EPA Adjusted tap water RSLs, and twice the mean Base background.

- SVOCs, OCPs, or PCBs were not detected in the groundwater samples at concentrations exceeding regulatory screening criteria.
- Methylene chloride, was detected in two groundwater samples at concentrations of $14 \,\mu g/L$ (IR85-TW06) and $190 \,\mu g/L$ (IR85-TW08), exceeding the NCGWQS and the EPA Adjusted Tap Water RSL.
- Aluminum was detected in nine groundwater samples at concentrations ranging from 110J μ g/L (IR85-TW05) to 15,100 μ g/L (IR85-TW06), and exceeded the EPA Adjusted Tap water RSL and twice the mean Base background in the groundwater sample collected from IR85-TW06.
- Chromium was detected in two groundwater samples at concentrations ranging from $1.8J\mu g/L$ (IR85-TW08) to $18.9J\mu g/L$ (IR85-TW06). The chromium concentration detected in the groundwater sample collected from IR85-TW06 exceeded the EPA Adjusted Tap Water RSL and twice the mean Base background.
- Iron was detected in nine groundwater samples at concentrations ranging from 106 μ g/L (IR85-MW05) to 6,900 μ g/L (IR85-TW06). The iron concentration detected in the groundwater samples collected from IR85-TW05 and IR85-TW06 exceeded the EPA Adjusted Tap water RSL and twice the mean Base background.

5.4.4 Batteries

The analytical data for the waste characterization testing conducted on the battery sample collected at Site 85 are presented in **Table 5-13**. The TCLP analyses detected 11 metals in the battery sample. Only lead and mercury were detected at concentrations exceeding TCLP criteria.

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UXO-20 Surface Soil Analytical Results Camp Johnson Construction Area Focused PA/SI Report MCB CamLej, North Carolina

Station ID Sample ID Sample Date	Camp Lejeune Background SS 2X Mean	NCSSLs (January, 2010)	Adjusted Industrial Soil RSLs	Adjusted Residential Soil RSLs	CJCA-SS001 CJCA-SS001-09C 07/07/09	CJCA-SS002 CJCA-SS002-09C 07/07/09	CJCA-SS003 CJCA-SS003-09C 07/07/09	CJCA-SS004 CJCA-SS004-09C 07/07/09	CJCA-SS005 CJCA-SS005-09C 07/07/09	CJCA-SS006 CJCA-SS006-09C 07/07/09	CJCA-SS007 CJCA-SS007-09C 07/07/09	CJCA-SS008 CJCA-SS008-09C 07/07/09	CJCA-SS009 CJCA-SS009-09C 07/07/09
Chemical Name													
Total Metals (mg/kg)													
Antimony	0.447		41	3.1	1.6 U	1.8 U	16.4 U	1.6 U	16.4 U	17.5 U	17.8 UJ	17 UJ	1.7 U
Arsenic	0.626	5.8	1.6	0.39	<u>0.64</u> <u>J</u>	1.8 U	16.4 U	<u>0.6</u> <u>J</u>	16.4 U	17.5 U	17.8 U	17 U	0.25 J
Copper	4.83	700	4,100	310	0.31 J	0.89 U	8.2 U	0.69 J	8.2 U	8.7 U	8.9 U	8.5 U	1.8
Lead	12.3	270	800	400	5.5	0.96	4.2 J	6	3 J	5.4 J	7.5 J	6 J	5.4
Zinc	10.8	1,200	31,000	2,400	2.1	1.8 U	16.4 U	2.7	16.4 U	8.2 J	7 J	17 U	3.4
Wet Chemistry					4.3	NA	NA	41	NA	NA	NA	3.8	NA

Notes:

Shading indicates exceedance of two times the mean base background concentration

Bold box indicates exceedance of NCSSLs

Bold text indicates exceedance of Adjusted Industrial Soil RSLs

Underline indicates exceedance of Adjusted Residential Soil RSLs

RSLs were adjusted for noncarcinogens to account for exposure to multiple constituents

NA - not analyzed

- J Analyte present, value may or may not be accurate or precise
- J- Analyte present, value may be biased low, actual value may be higher
- J+ Analyte present, value may be biased high, actual value may be lower
- U The material was analyzed for, but not detected

UJ - Analyte not detected, quantitation limit may be inaccurate

mg/kg - milligrams per kilogram

UXO-20 Surface Soil Analytical Results Camp Johnson Construction Area Focused PA/SI Report MCB CamLej, North Carolina

Station ID Sample ID Sample Date	Camp Lejeune Background SS 2X Mean	NCSSLs (January, 2010)	Adjusted Industrial Soil RSLs	Adjusted Residential Soil RSLs	CJCA-SS010 CJCA-SS010-09C 07/07/09	CJCA-SS011 CJCA-SS011-09C 07/07/09	CJCA-SS012 CJCA-SS012-09C 07/07/09	CJCA-SS013 CJCA-SS013-09C 07/07/09	CJCA-SS014 CJCA-SS014-09C 07/07/09	CJCA-SS015 CJCA-SS015-09C 07/07/09	CJCA-SS016 CJCA-SS016-09C 07/07/09	CJCA-SS017 CJCA-SS017-09C 07/07/09	CJCA-SS018 CJCA-SS018-09C 07/07/09	CJCA-SS019 CJCA-SS019-09C 07/07/09
Chemical Name														
Total Metals (mg/kg)														
Antimony	0.447		41	3.1	1.7 U	1.9 UJ	1.7 U	17.1 U	1.7 U	1.6 U	1.6 U	1.6 UJ	1.6 UJ	1.6 UJ
Arsenic	0.626	5.8	1.6	0.39	1.7 U	<u>0.44</u> <u>J</u>	<u>0.45</u> <u>J</u>	17.1 U	0.34 J	1.6 U	<u>0.4</u> <u>J</u>	<u>0.62</u> <u>J</u>	<u>0.67</u> <u>J</u>	0.26 J
Copper	4.83	700	4,100	310	0.83 U	0.99 J	0.5 J	8.5 U	0.26 J	1.8	1.3	0.79 J	0.94 J	0.95 J
Lead	12.3	270	800	400	0.54 J	9.5	3.9	6 J	3.8	4.1	6.4	4.7	3.2	5.9
Zinc	10.8	1,200	31,000	2,400	1.7 U	3.4 J	2.9	17.1 U	4.9	4.1	2.8	1.9 J	3.7 J	2.6 J
Wet Chemistry														
рН					NA	4.9	NA	NA	NA	4.4	NA	NA	NA	6.9

Notes:

Shading indicates exceedance of two times the mean base background concentration

Bold box indicates exceedance of NCSSLs

Bold text indicates exceedance of Adjusted Industrial Soil RSLs

Underline indicates exceedance of Adjusted Residential Soil RSLs

RSLs were adjusted for noncarcinogens to account for exposure to multiple constituents

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- U The material was analyzed for, but not detected

UJ - Analyte not detected, quantitation limit may be inaccurate

mg/kg - milligrams per kilogram

UXO-20 Surface Soil Analytical Results Camp Johnson Construction Area Focused PA/SI Report MCB CamLej, North Carolina

Station ID	Camp Lejeune	NCSSLs	Adjusted	Adjusted	CJCA-SS020	CJC/	A-SS021	CJCA-SS022	CJCA-SS023	CJCA-SS024	CJCA-SS025	CJCA-SS026	CJCA-SS027
Sample ID	Background SS	(January,	Industrial Soil	Residential	CJCA-SS020-09C	CJCA-SS021-09C	CJCA-SS021D-09C	CJCA-SS022-09C	CJCA-SS023-09C	CJCA-SS024-09C	CJCA-SS025-09C	CJCA-SS026-09C	CJCA-SS027-09C
Sample Date	2X Mean	2010)	RSLs	Soil RSLs	07/07/09	07/07/09	07/07/09	07/07/09	07/07/09	07/08/09	07/07/09	07/07/09	07/08/09
Chemical Name													
Total Metals (mg/kg)													
Antimony	0.447		41	3.1	1.6 UJ	1.6 UJ	1.6 U	1.6 U	16.9 U	1.6 U	1.6 U	1.6 U	1.6 U
Arsenic	0.626	5.8	1.6	0.39	<u>0.53</u> <u>J</u>	0.22 J	0.29 J	<u>0.68</u> <u>J</u>	16.9 U	0.29 J	<u>0.5</u> <u>J</u>	<u>0.42</u> <u>J</u>	<u>0.64</u> <u>J</u>
Copper	4.83	700	4,100	310	1.2 J	1.2 J	1.2 J	0.83 J	8.5 U	1.4 J	2.7	0.83 J	0.51 J
Lead	12.3	270	800	400	5.4	11.1	11.8	6.4	3.8 J	3.9	8.3	5.4	5.2
Zinc	10.8	1,200	31,000	2,400	5.7	7.7	7	2.4 J	16.9 U	5.6	17.6	4.3	8.6
Wet Chemistry												·	
рН					NA	NA	NA	NA	NA	5.4	NA	NA	NA

Notes:

Shading indicates exceedance of two times the mean base background concentration

Bold box indicates exceedance of NCSSLs

Bold text indicates exceedance of Adjusted Industrial Soil RSLs

Underline indicates exceedance of Adjusted Residential Soil RSLs

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mg/kg - milligrams per kilogram

UXO-20 Surface Soil Analytical Results Camp Johnson Construction Area Focused PA/SI Report MCB CamLej, North Carolina

Station ID Sample ID Sample Date	Camp Lejeune Background SS 2X Mean	NCSSLs (January, 2010)	Adjusted Industrial Soil RSLs	Adjusted Residential Soil RSLs	CJCA-SS028 CJCA-SS028-09C 07/07/09	CJCA-SS029 CJCA-SS029-09C 07/07/09	CJCA-SS030 CJCA-SS030-09C 07/07/09	CJCA-SS031 CJCA-SS031-09C 07/07/09	CJCA-SS032 CJCA-SS032-09C 07/08/09	CJCA-SS033 CJCA-SS033-09C 07/08/09	CJCA-SS034 CJCA-SS034-09C 07/08/09	CJCA-SS035 CJCA-SS035-09C 07/08/09
Chemical Name												
Total Metals (mg/kg)												
Antimony	0.447		41	3.1	1.7 U	1.6 UJ	1.6 U	1.5 U	1.6 U	1.8 U	1.6 U	1.5 U
Arsenic	0.626	5.8	1.6	0.39	0.33 J	1.6 U	<u>0.43</u> <u>J</u>	0.38 J	0.39 J	<u>2.8</u>	<u>0.7</u> <u>J</u>	0.36 J
Copper	4.83	700	4,100	310	1.5 J	0.69 J	2.2	2.3	1.6 J	26.1	1.2 J	2.8
Lead	12.3	270	800	400	9.7	5.3	10.1	10.2	18.1	115	5.8	41
Zinc	10.8	1,200	31,000	2,400	10.2	1.9 J	33	6.8	14.9	42.8	4.6	3.2 J
Wet Chemistry												
рН					7.8	NA	NA	NA	7	NA	NA	NA

Notes:

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Bold text indicates exceedance of Adjusted Industrial Soil RSLs

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mg/kg - milligrams per kilogram

UXO-20 Surface Soil Analytical Results Camp Johnson Construction Area Focused PA/SI Report MCB CamLej, North Carolina

Station ID Sample ID	Camp Lejeune Background SS	NCSSLs (January,	Adjusted Industrial Soil	Adjusted Residential	CJCA-SS036 CJCA-SS036-09C	CJCA-SS037 CJCA-SS037-09C	CJCA-SS038 CJCA-SS038-09C	CJCA-SS039 CJCA-SS039-09C	CJCA-SS040 CJCA-SS040-09C	CJCA CJCA-SS041-09C	A-SS041 CJCA-SS041D-09C	CJCA-SS042 CJCA-SS042-09C	CJCA-SS043 CJCA-SS043-09C	CJCA-SS044 CJCA-SS044-09C
Sample Date	2X Mean	2010)	RSLs	Soil RSLs	07/08/09	07/08/09	07/08/09	07/08/09	07/08/09	07/08/09	07/08/09	07/08/09	07/08/09	07/08/09
Chemical Name														
Total Metals (mg/kg)														
Antimony	0.447		41	3.1	1.5 U	1.7 U	1.8 U	1.6 U	1.6 U	1.6 UJ	1.6 UJ	1.7 UJ	1.7 U	1.6 U
Arsenic	0.626	5.8	1.6	0.39	<u>0.56</u> <u>J</u>	<u>1.4</u> <u>J</u>	<u>2.4</u>	<u>0.78</u> <u>J</u>	<u>1.1</u> <u>J</u>	<u>0.63</u> <u>J</u>	<u>0.62</u> <u>J</u>	<u>1.2</u> <u>J</u>	<u>1.9</u>	<u>1.4</u> <u>J</u>
Copper	4.83	700	4,100	310	0.62 J	8.4	7.2	1.6 J	1.5 J	4.1	4.7	4.7	4.8	2.6
Lead	12.3	270	800	400	4.4	6.4	18.3	5.3	10.5	8.1	10.5	13	16.2	10.2
Zinc	10.8	1,200	31,000	2,400	2.1 J	17	20.3	4.7	16.3	117	108	19.1	31.4	15.3
Wet Chemistry														
рН					NA	NA	5.9	NA	NA	NA	NA	NA	NA	7.9

Notes:

Shading indicates exceedance of two times the mean base background concentration

Bold box indicates exceedance of NCSSLs

Bold text indicates exceedance of Adjusted Industrial Soil RSLs

Underline indicates exceedance of Adjusted Residential Soil RSLs

RSLs were adjusted for noncarcinogens to account for exposure to multiple constituents

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- J Analyte present, value may or may not be accurate or precise
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- J+ Analyte present, value may be biased high, actual value may be lower
- U The material was analyzed for, but not detected

UJ - Analyte not detected, quantitation limit may be inaccurate

mg/kg - milligrams per kilogram

UXO-20 Surface Soil Analytical Results Camp Johnson Construction Area Focused PA/SI Report MCB CamLej, North Carolina

Station ID	Camp Lejeune	NCSSLs	Adjusted	Adjusted	CJCA-SS045	CJCA	-SS046	CJCA-SS047	CJCA-SS048	CJCA-SS049	CJCA-SS050	CJCA-SS051	CJCA-SS052
Sample ID	Background SS	(January,	Industrial Soil	Residential	CJCA-SS045-09C	CJCA-SS046-09C	CJCA-SS046D-09C	CJCA-SS047-09C	CJCA-SS048-09C	CJCA-SS049-09C	CJCA-SS050-09C	CJCA-SS051-09C	CJCA-SS052-09C
Sample Date	2X Mean	2010)	RSLs	Soil RSLs	07/09/09	07/08/09	07/08/09	07/08/09	07/08/09	07/08/09	07/08/09	07/08/09	07/08/09
Chemical Name													
Total Metals (mg/kg)													
Antimony	0.447		41	3.1	1.6 U	0.26 J	0.4 J	1.6 U	1.6 UJ	1.6 U	1.7 UJ	1.7 U	1.8 U
Arsenic	0.626	5.8	1.6	0.39	<u>0.94</u> <u>J+</u>	<u>1.2</u> <u>J</u>	<u>1.2</u> <u>J</u>	<u>0.98</u> <u>J</u>	0.33 J	<u>1.1</u> <u>J</u>	<u>0.74</u> <u>J</u>	1.7 U	<u>1.8</u> <u>J</u>
Copper	4.83	700	4,100	310	0.86 J	2.5	2.3	0.81 J	2.2	0.66 J	1 J	1.7 U	0.6 J
Lead	12.3	270	800	400	8.5	4.5	4.4	5	13	7.7	7.4	0.74 J	6.5
Zinc	10.8	1,200	31,000	2,400	5.1	8.2	10.4	3.3 J	49	2.3 J	6.7	0.86 J	3.1 J
Wet Chemistry													
рН					NA	NA	NA	NA	5	NA	NA	NA	5.1

Notes:

Shading indicates exceedance of two times the mean base background concentration

Bold box indicates exceedance of NCSSLs

Bold text indicates exceedance of Adjusted Industrial Soil RSLs

Underline indicates exceedance of Adjusted Residential Soil RSLs

RSLs were adjusted for noncarcinogens to account for exposure to multiple constituents

NA - not analyzed

- J Analyte present, value may or may not be accurate or precise
- J- Analyte present, value may be biased low, actual value may be higher
- J+ Analyte present, value may be biased high, actual value may be lower
- U The material was analyzed for, but not detected

UJ - Analyte not detected, quantitation limit may be inaccurate

mg/kg - milligrams per kilogram

UXO-20 Surface Soil Analytical Results Camp Johnson Construction Area Focused PA/SI Report MCB CamLej, North Carolina

Station ID	Camp Lejeune	NCSSLs	Adjusted	Adjusted	CJCA	-SS053	CJCA	-SS054	CJCA-SS055	CJCA	N-SS056	CJCA-SS057	CJCA-SS058
Sample ID	Background SS	(January,	Industrial Soil	Residential	CJCA-SS053-09C	CJCA-SS053D-09C	CJCA-SS054-09C	CJCA-SS054D-09C	CJCA-SS055-09C	CJCA-SS056-09C	CJCA-SS056D-09C	CJCA-SS057-09C	CJCA-SS058-09C
Sample Date	2X Mean	2010)	RSLs	Soil RSLs	07/08/09	07/08/09	07/08/09	07/08/09	07/07/09	07/07/09	07/07/09	07/07/09	07/07/09
Chemical Name													
Total Metals (mg/kg)													
Antimony	0.447		41	3.1	1.8 U	1.8 U	1.6 U	1.6 U	1.7 U	1.7 UJ	1.7 UJ	1.7 U	1.7 UJ
Arsenic	0.626	5.8	1.6	0.39	<u>1.1</u> <u>J</u>	<u>1.3</u> <u>J</u>	<u>2.7</u>	<u>1.8</u>	<u>0.48</u> <u>J</u>	<u>1.4</u> <u>J</u>	<u>1.8</u>	<u>1.2</u> <u>J</u>	<u>1.1</u> <u>J</u>
Copper	4.83	700	4,100	310	0.84 J	1.1 J	1.3 J	1.2 J	0.52 J	1.4 J	1.4 J	1.7	1.7 J
Lead	12.3	270	800	400	6.6	7.6	5.3	5	4.3	11.6	12.2	14.4	12.1
Zinc	10.8	1,200	31,000	2,400	3.5 J	4.3 J	3.3 J	3.3 J	1.3 J	4.6	4.5	7.7	4.5
Wet Chemistry													
рН					NA	NA	NA	NA	NA	NA	NA	NA	4.6

Notes:

Shading indicates exceedance of two times the mean base background concentration

Bold box indicates exceedance of NCSSLs

Bold text indicates exceedance of Adjusted Industrial Soil RSLs

Underline indicates exceedance of Adjusted Residential Soil RSLs

RSLs were adjusted for noncarcinogens to account for exposure to multiple constituents

NA - not analyzed

- J Analyte present, value may or may not be accurate or precise
- J- Analyte present, value may be biased low, actual value may be higher
- J+ Analyte present, value may be biased high, actual value may be lower
- U The material was analyzed for, but not detected

UJ - Analyte not detected, quantitation limit may be inaccurate

mg/kg - milligrams per kilogram

ph - pH units

Created by: B. Propst/CLT Checked by: K. Howell/CLT

UXO-20 Surface Soil Analytical Results Camp Johnson Construction Area Focused PA/SI Report MCB CamLej, North Carolina

Station ID Sample ID	Camp Lejeune Background SS	NCSSLs (January,	Adjusted Industrial Soil	Adjusted Residential	CJCA-SS059 CJCA-SS059-09C	CJCA-SS060 CJCA-SS060-09C	CJCA-SS061 CJCA-SS061-09C	CJCA-SS062 CJCA-SS062-09C	CJCA-SS063 CJCA-SS063-09C	CJCA-SS064 CJCA-SS064-09C	CJCA-SS065 CJCA-SS065-09C	CJCA-SS066 CJCA-SS066-09C	CJCA-SS067 CJCA-SS067-09C	CJCA-SS068 CJCA-SS068-09C
Sample Date	2X Mean	2010)	RSLs	Soil RSLs	07/07/09	07/07/09	07/08/09	07/09/09	07/09/09	07/09/09	07/09/09	07/09/09	07/09/09	07/09/09
Chemical Name														
Total Metals (mg/kg)														
Antimony	0.447		41	3.1	1.6 UJ	1.6 UJ	0.21 J-	0.22 J-	1.7 UJ	1.8 U	1.7 UJ	1.6 U	1.7 U	1.6 U
Arsenic	0.626	5.8	1.6	0.39	<u>1.7</u>	<u>1.1</u> <u>J</u>	<u>1.3</u> <u>J</u>	<u>1.1</u> <u>J+</u>	<u>1.3</u> <u>J+</u>	<u>0.7</u> <u>J+</u>	<u>1.1</u> <u>J+</u>	<u>1.5</u> <u>J+</u>	<u>2.6</u> <u>J+</u>	<u>1.8</u> <u>J+</u>
Copper	4.83	700	4,100	310	2	0.76 J	1.3 J	1.2 J	1.7 J	0.6 J	1.4 J	0.67 J	0.62 J	1.2 J
Lead	12.3	270	800	400	10.9	5.8	4.2	3.9	6.4	4.8	11.5	6.7	5.5	6.6
Zinc	10.8	1,200	31,000	2,400	6.2	1.5 J	25.2	4.9	5.2	9.3	5.6	2.2 J	2.7 J	3.6 J
Wet Chemistry														
 pH					NA	NA	NA	NA	4.4	NA	NA	4.6	NA	4.6

Notes:

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Bold text indicates exceedance of Adjusted Industrial Soil RSLs

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mg/kg - milligrams per kilogram

UXO-20 Surface Soil Analytical Results Camp Johnson Construction Area Focused PA/SI Report MCB CamLej, North Carolina

Station ID	Camp Lejeune	NCSSLs	Adjusted	Adjusted	CJCA-SS069	CJCA	A-SS070	CJCA-SS071	CJCA-SS072	CJCA-SS073	CJCA-SS074	CJCA-SS075	CJCA-SS076	CJCA-SS077
Sample ID	Background SS	(January,	Industrial Soil	Residential	CJCA-SS069-09C	CJCA-SS070-09C	CJCA-SS070D-09C	CJCA-SS071-09C	CJCA-SS072-09C	CJCA-SS073-09C	CJCA-SS074-09C	CJCA-SS075-09C	CJCA-SS076-09C	CJCA-SS077-09C
Sample Date	2X Mean	2010)	RSLs	Soil RSLs	07/09/09	07/08/09	07/08/09	07/08/09	07/08/09	07/08/09	07/09/09	07/09/09	07/08/09	07/09/09
Chemical Name														
Total Metals (mg/kg)														
Antimony	0.447		41	3.1	1.6 U	1.7 UJ	1.7 UJ	1.7 UJ	1.7 UJ	1.8 U	0.24 J-	0.18 J-	1.7 U	1.6 UJ
Arsenic	0.626	5.8	1.6	0.39	<u>0.76</u> <u>J+</u>	<u>1</u> <u>J</u>	<u>0.98</u> <u>J</u>	<u>1.7 J</u>	<u>6.7</u>	<u>0.88</u> <u>J</u>	0.94 J+	<u>0.5</u> <u>J+</u>	<u>0.42</u> <u>J</u>	0.39 J+
Copper	4.83	700	4,100	310	0.44 J	0.54 J	0.62 J	0.79 J	2	0.61 J	0.76 J	0.62 J	0.37 J	0.26 J
Lead	12.3	270	800	400	5.6	6.3	7.3	7.3	9	5.1	6.2	3.8	2.5	3.9
Zinc	10.8	1,200	31,000	2,400	6.7	4.2 U	4.2 U	4.2 U	5.6	1.8 J	3.2 J	2 J	2.4 J	1.1 J
Wet Chemistry														
I pH					NA	NA	NA	NA	NA	NA	4.9	NA	NA	NA

Notes:

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mg/kg - milligrams per kilogram

UXO-20 Surface Soil Analytical Results Camp Johnson Construction Area Focused PA/SI Report MCB CamLej, North Carolina

Station ID	Camp Lejeune	NCSSLs	Adjusted	Adjusted	CJCA-SS078	CJCA-SS079	CJCA	-SS080	CJCA-SS081	CJCA-SS082	CJCA-SS083	CJCA-SS084	CJCA-SS085	CJCA-SS086
Sample ID	Background SS	(January,	Industrial Soil	Residential	CJCA-SS078-09C	CJCA-SS079-09C	CJCA-SS080-09C	CJCA-SS080D-09C	CJCA-SS081-09C	CJCA-SS082-09C	CJCA-SS083-09C	CJCA-SS084-09C	CJCA-SS085-09C	CJCA-SS086-09C
Sample Date	2X Mean	2010)	RSLs	Soil RSLs	07/09/09	07/08/09	07/09/09	07/09/09	07/09/09	07/08/09	07/09/09	07/09/09	07/07/09	07/07/09
Chemical Name														
Total Metals (mg/kg)														
Antimony	0.447		41	3.1	1.7 UJ	1.8 UJ	1.7 UJ	1.6 UJ	1.8 UJ	1.6 UJ	1.6 UJ	0.22 J-	1.7 U	1.7 UJ
Arsenic	0.626	5.8	1.6	0.39	<u>1.6</u> <u>J+</u>	<u>0.76</u> <u>J</u>	<u>1.1</u> <u>J+</u>	<u>0.93</u> <u>J+</u>	<u>1.3</u> <u>J+</u>	<u>1</u> <u>J</u>	<u>1.1</u> <u>J+</u>	<u>1</u> <u>J+</u>	<u>0.95</u> <u>J</u>	<u>0.86</u> <u>J</u>
Copper	4.83	700	4,100	310	0.98 J	0.51 J	0.72 J	0.69 J	1.6 J	0.56 J	0.73 J	0.71 J	0.36 J	0.57 J
Lead	12.3	270	800	400	7.7	4.6	5.8	5.9	10.3	5.7	7.7	7.5	7.1	6.1
Zinc	10.8	1,200	31,000	2,400	2.6 J	4.5 U	1.9 J	1.6 J	4.8	3.9 U	2.6 J	1.5 J	1.6 J	1.5 J
Wet Chemistry														
рН		-			NA	NA	NA	NA	NA	NA	4.5	NA	NA	4.1

Notes:

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UXO-20 Surface Soil Analytical Results Camp Johnson Construction Area Focused PA/SI Report MCB CamLej, North Carolina

Station ID	Camp Lejeune	NCSSLs	Adjusted	Adjusted	CJCA-SS087	CJCA-SS088	CJCA-SS089	CJCA-SS090	CJCA-SS091	CJCA-	SS092	CJCA-SS093	CJCA-SS094	CJCA-SS095
Sample ID	Background SS	(January,	Industrial Soil	Residential	CJCA-SS087-09C	CJCA-SS088-09C	CJCA-SS089-09C	CJCA-SS090-09C	CJCA-SS091-09C	CJCA-SS092-09C	CJCA-SS092D-09C	CJCA-SS093-09C	CJCA-SS094-09C	CJCA-SS095-09C
Sample Date	2X Mean	2010)	RSLs	Soil RSLs	07/07/09	07/07/09	07/07/09	07/07/09	07/07/09	07/07/09	07/07/09	07/07/09	07/07/09	07/07/09
Chemical Name														
Total Metals (mg/kg)														
Antimony	0.447		41	3.1	1.6 UJ	1.7 U	1.7 UJ	1.8 UJ	1.6 UJ	1.6 U	1.7 UJ	1.7 UJ	1.7 UJ	1.7 U
Arsenic	0.626	5.8	1.6	0.39	<u>0.97</u> <u>J</u>	<u>0.89</u> <u>J</u>	<u>1.1</u> <u>J</u>	<u>1.5</u> <u>J</u>	<u>0.91</u> <u>J</u>	<u>0.83</u> <u>J</u>	<u>0.84</u> <u>J</u>	<u>2.1</u>	<u>0.95</u> <u>J</u>	<u>1</u> <u>J</u>
Copper	4.83	700	4,100	310	1 J	1.4 J	0.83 J	0.93 J	0.38 J	0.57 J	0.63 J	3.2	1.1	0.6 J
Lead	12.3	270	800	400	7	6.3	6.8	7.2	5	9.8	8.1	9.6	6.6	6.6
Zinc	10.8	1,200	31,000	2,400	1.2 J	3.1 J	2.1 J	2.4 J	1.9	1.8 J	1.8 J	21.2	2.6	2
Wet Chemistry														
pН					NA	NA	NA	NA	NA	4.3	4.3	NA	NA	NA

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UXO-20 Surface Soil Analytical Results Camp Johnson Construction Area Focused PA/SI Report MCB CamLej, North Carolina

Station ID Sample ID Sample Date	Camp Lejeune Background SS 2X Mean	NCSSLs (January, 2010)	Adjusted Industrial Soil RSLs	Adjusted Residential Soil RSLs	CJCA-SS096 CJCA-SS096-09C 07/07/09	CJCA-SS097 CJCA-SS097-09C 07/07/09	CJCA-SS098 CJCA-SS098-09C 07/07/09	CJCA-SS099 CJCA-SS099-09C 07/07/09	CJCA-SS100 CJCA-SS100-09C 07/09/09	CJCA-SS101 CJCA-SS101-09C 07/09/09	CJCA-SS102 CJCA-SS102-09C 07/09/09	CJCA-SS103 CJCA-SS103-09C 07/09/09	CJCA-SS104 CJCA-SS104-09C 07/09/09
Chemical Name													
Total Metals (mg/kg)													
Antimony	0.447		41	3.1	1.7 UJ	1.7 UJ	1.6 UJ	1.6 UJ	1.6 UJ	1.6 U	1.6 U	1.7 UJ	1.6 U
Arsenic	0.626	5.8	1.6	0.39	<u>0.9</u> <u>J</u>	<u>2</u>	<u>0.67</u> <u>J</u>	<u>1.5</u> <u>J</u>	<u>1.1</u> <u>J+</u>	<u>1</u> <u>J</u>	<u>1.1</u> <u>J</u>	<u>1.3</u> <u>J+</u>	<u>1.6</u> <u>J</u>
Copper	4.83	700	4,100	310	0.82 J	5.6	0.67 J	0.71 J	0.47 J	0.55 J	0.55 J	0.93 J	1.3 J
Lead	12.3	270	800	400	5.7	18	4.4	8	6.7	9.1	6.2	9.8	10.6
Zinc	10.8	1,200	31,000	2,400	2.4	6.1	1.7 J	2.6 J	1.9 J	2.5 J	2.2 J	2.4 J	4.4
Wet Chemistry					NA		NA	NA	4.4	NA	NA	4	NA

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mg/kg - milligrams per kilogram

UXO-20 Surface Soil Analytical Results Camp Johnson Construction Area Focused PA/SI Report MCB CamLej, North Carolina

Station ID	Camp Lejeune	NCSSLs	Adjusted	Adjusted	CJCA	-SS105	CJCA-SS106	CJCA-SS107	CJCA-SS108	CJCA-SS109
Sample ID	Background SS	(January,	Industrial Soil	Residential	CJCA-SS105-09C	CJCA-SS105D-09C	CJCA-SS106-09C	CJCA-SS107-09C	CJCA-SS108-09C	CJCA-SS109-09C
Sample Date	2X Mean	2010)	RSLs	Soil RSLs	07/09/09	07/09/09	07/09/09	07/09/09	07/09/09	07/09/09
Chemical Name										
Total Metals (mg/kg)										
Antimony	0.447		41	3.1	1.7 UJ	1.7 UJ	1.6 U	1.7 U	1.6 U	1.6 U
Arsenic	0.626	5.8	1.6	0.39	<u>1.8</u> <u>J+</u>	<u>1.5</u> <u>J+</u>	<u>1.7</u> <u>J+</u>	<u>1.2</u> <u>J+</u>	<u>1.3</u> <u>J+</u>	0.35 J+
Copper	4.83	700	4,100	310	7.8	4.8	0.95 J	0.96 J	0.8 J	0.43 J
Lead	12.3	270	800	400	6.6	6.4	7.1	8.2	5.6	2.9
Zinc	10.8	1,200	31,000	2,400	17.8	10.8	2.5 J	2 J	2.7 J	1.6 J
Wet Chemistry										
рН		-			NA	NA	4.4	NA	NA	NA

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UXO-20 Surface Soil Analytical Results Camp Johnson Construction Area Focused PA/SI MCB CamLej, North Carolina

Station ID	Camp Lejeune	NCSSLs	Adjusted	Adjusted	CJCA-SS110	CJCA-SS111	CJCA-SS112	CJCA-SS113	CJCA-SS114	CJCA-SS115	CJCA-SS116	CJCA-SS117	CJCA-SS118	CJCA-SS119	CJCA-SS120	CJCA-SS121
Sample ID	Background SS	(January, 2010)	Industrial	Residential	CJCA-SS110-09C	CJCA-SS111-09C	CJCA-SS112-09C	CJCA-SS113-09C	CJCA-SS114-09C	CJCA-SS115-09C	CJCA-SS116-09C	CJCA-SS117-09C	CJCA-SS118-09C	CJCA-SS119-09C	CJCA-SS120-09C	CJCA-SS121-09C
Sample Date	2X Mean	(bandary, 2010)	Soil RSLs	Soil RSLs	07/08/09	07/08/09	07/09/09	07/08/09	07/08/09	07/09/09	07/08/09	07/08/09	07/09/09	07/08/09	07/08/09	07/08/09
Chemical Name																
Total Metals (mg/kg)																
Antimony	0.447		41	3.1	1.6 UJ	1.6 UJ	1.7 U	1.7 UJ	1.7 UJ	0.2 J-	1.6 U	1.8 U	1.6 UJ	1.8 U	1.6 U	1.6 U
Arsenic	0.626	5.8	1.6	0.39	<u>0.53</u> <u>J</u>	<u>0.41</u> <u>J</u>	0.86 J+	<u>0.54</u> <u>J</u>	<u>1.5</u> <u>J</u>	<u>1.1</u> <u>J+</u>	<u>1.6</u> <u>J</u>	<u>1.4</u> <u>J</u>	<u>0.96</u> <u>J+</u>	<u>1.9</u>	<u>3.7</u>	<u>0.9</u> <u>J</u>
Copper	4.83	700	4,100	310	0.74 J	0.57 J	0.64 J	0.48 J	0.76 J	1.5 J	1.1 J	0.37 J	0.45 J	0.69 J	0.6 J	0.54 J
Lead	12.3	270	800	400	3.8	4	4.5	4.5	7.9	19.2	8.7	6.6	5.3	6	6	4.8
Zinc	10.8	1,200	31,000	2,300	4 U	4.1 U	2 J	4.2 U	4.1 U	3.7 J	2.6 J	1.9 J	2.1 J	2.5 J	1.5 J	4.1 U
Wet Chemistry																
pH (ph)					NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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UXO-20 Surface Soil Analytical Results Camp Johnson Construction Area Focused PA/SI MCB CamLej, North Carolina

Station ID	Camp Lejeune	NCSSLs	Adjusted	Adjusted	CJCA-SS122	CJCA-SS123	CJCA-SS124	CJCA-SS125	CJCA-SS126	CJCA-SS127	CJCA-SS128	CJCA-SS129	CJCA	A-SS130	CJCA-SS131	CJCA-SS132
Sample ID	Background SS	(January, 2010)	Industrial	Residential	CJCA-SS122-09C	CJCA-SS123-09C	CJCA-SS124-09C	CJCA-SS125-09C	CJCA-SS126-09C	CJCA-SS127-09C	CJCA-SS128-09C	CJCA-SS129-09C	CJCA-SS130-09C	CJCA-SS130D-09C	CJCA-SS131-09C	CJCA-SS132-09C
Sample Date	2X Mean	(January, 2010)	Soil RSLs	Soil RSLs	07/08/09	07/08/09	07/08/09	07/08/09	07/08/09	07/09/09	07/08/09	07/09/09	07/08/09	07/08/09	07/08/09	07/08/09
Chemical Name																
Total Metals (mg/kg)																
Antimony	0.447	-	41	3.1	1.7 U	1.7 U	1.7 U	1.6 UJ	1.7 UJ	1.6 UJ	1.7 U	1.7 UJ	1.6 U	1.7 U	1.7 U	1.7 UJ
Arsenic	0.626	5.8	1.6	0.39	<u>0.91</u> <u>J</u>	<u>2.5</u>	<u>0.97</u> <u>J</u>	<u>0.68</u> <u>J</u>	<u>0.83</u> <u>J</u>	<u>1.2</u> <u>J</u>	<u>1.8</u>	<u>0.89</u> <u>J</u>	<u>1.1</u> J	<u>1.2</u> <u>J</u>	<u>1.2</u> <u>J</u>	<u>1.1</u> <u>J</u>
Copper	4.83	700	4,100	310	0.43 J	0.83 J	0.75 J	0.88	0.77 J	2.6	4.8	2.5	0.91 J	1.2 J	4.9	1.7
Lead	12.3	270	800	400	5.9	6.6	5.5	4.8	6	7.8	7.8	5.9	11.4	12.3	5.2	6.2
Zinc	10.8	1,200	31,000	2,300	1.6 J	2.1 J	4.2 U	1.9	2.3	7.3	6.4	7.4	4.1 U	4.4 U	11.2	7.1
Wet Chemistry																
pH (ph)		-			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

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UXO-20 Surface Soil Analytical Results Camp Johnson Construction Area Focused PA/SI MCB CamLej, North Carolina

Station ID	Camp Lejeune	NCSSLs	Adjusted	Adjusted	CJCA-SS133	CJCA-SS134	CJCA-SS135	CJCA-SS136	CJCA-SS137	CJCA	A-SS138	CJCA-SS139	CJCA	A-SS140	CJCA-SS141	CJCA-SS142
Sample ID	Background SS	(January, 2010)	Industrial	Residential	CJCA-SS133-09C	CJCA-SS134-09C	CJCA-SS135-09C	CJCA-SS136-09C	CJCA-SS137-09C	CJCA-SS138-09C	CJCA-SS138D-09C	CJCA-SS139-09C	CJCA-SS140-09C	CJCA-SS140D-09C	CJCA-SS141-09C	CJCA-SS142-09C
Sample Date	2X Mean	(January, 2010)	Soil RSLs	Soil RSLs	07/08/09	07/08/09	07/09/09	07/09/09	07/09/09	07/09/09	07/09/09	07/09/09	07/09/09	07/09/09	07/08/09	07/09/09
Chemical Name																
Total Metals (mg/kg)																
Antimony	0.447		41	3.1	1.5 U	2.1 U	1.8 UJ	1.9 UJ	1.7 UJ	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 UJ
Arsenic	0.626	5.8	1.6	0.39	<u>1.3</u> <u>J</u>	<u>1.8</u> <u>J</u>	<u>2.1</u>	<u>6.9</u>	<u>2.1</u>	<u>1.3</u> <u>J+</u>	<u>1.2</u> <u>J+</u>	<u>1.1 J</u>	<u>1.5</u> <u>J</u>	<u>1.7</u>	1.7 U	<u>0.93</u> <u>J</u>
Copper	4.83	700	4,100	310	1.1 J	1.8 J	1.1 J	1.2 J	1.1 J	0.77 J	0.81 J	0.6 J	2.9	2.5	1.7 U	0.8 J
Lead	12.3	270	800	400	6.9	9.2	7.5	11.4	6.7	5.8	6.3	6.2	12.8	14.1	0.71 J	6.1
Zinc	10.8	1,200	31,000	2,300	2.1 J	2.9 J	4.4 U	4.7 U	4.3 U	2.1 J	2.5 J	1.7 J	6.3	5.4	4.1 U	4.2 U
Wet Chemistry																
pH (ph)					NA	NA	NA	4.6	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

Shading indicates exceedance of two times the mean base background concentration

Bold box indicates exceedance of NCSSLs

Bold text indicates exceedance of Adjusted Industrial Soil RSLs

Underline indicates exceedance of Adjusted Residential Soil RSLs

RSLs were adjusted for noncarcinogens to account for exposure to multiple constituents

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UXO-20 Surface Soil Analytical Results Camp Johnson Construction Area Focused PA/SI MCB CamLej, North Carolina

Station ID Sample ID	Camp Lejeune Background SS	NCSSLs	Adjusted Industrial	Adjusted Residential	CJCA-SS143 CJCA-SS143-09C	CJCA-SS144 CJCA-SS144-09C	CJCA-SS145 CJCA-SS145-09C	CJCA-SS146 CJCA-SS146-09C	CJCA-SS147 CJCA-SS147-09C		-SS148 CJCA-SS148D-09C	CJCA-SS149 CJCA-SS149-09C	CJCA-SS150 CJCA-SS150-09C	CJCA-SS151 CJCA-SS151-09C	CJCA-SS152 CJCA-SS152-09C	CJCA-SS153 CJCA-SS153-09C
Sample Date	2X Mean	(January, 2010)	Soil RSLs	Soil RSLs	07/09/09	07/08/09	07/09/09	07/09/09	07/09/09	07/09/09	07/09/09	07/09/09	07/09/09	07/09/09	07/10/09	07/09/09
Chemical Name																
Total Metals (mg/kg)																
Antimony	0.447		41	3.1	1.7 U	1.6 U	0.22 J	1.6 U	1.7 UJ	1.7 UJ	1.7 UJ	0.19 J-	1.9 U	1.6 UJ	1.9 U	0.24 J-
Arsenic	0.626	5.8	1.6	0.39	<u>0.82</u> <u>J</u>	<u>0.97</u> <u>J</u>	<u>0.62</u> <u>J</u>	<u>1.1 J</u>	<u>1.3</u> <u>J+</u>	<u>1.1</u> <u>J</u>	<u>1.1</u> <u>J</u>	<u>0.89</u> <u>J</u>	<u>1.3 J</u>	<u>1</u> <u>J</u>	<u>1.5</u> <u>J</u>	<u>1.1</u> <u>J+</u>
Copper	4.83	700	4,100	310	0.54 J	0.78 J	0.85 J	1 J	0.84 J	0.79 J	1.3 J	0.85 J	0.93 J	1.1 J	1.3 J	0.92 J
Lead	12.3	270	800	400	5.1	8.3	5.1	5.4	5.2	6	6.3	9	11.5	5.9	14.3	28.3
Zinc	10.8	1,200	31,000	2,300	2.1 J	4.1 U	1.6 J	2 J	2.3 J	4.4 U	4.2 U	4.3 U	1.8 J	4.1 U	4.8 U	3.4 J
Wet Chemistry																
pH (ph)					NA	4.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

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UXO-20 Surface Soil Analytical Results Camp Johnson Construction Area Focused PA/SI MCB CamLej, North Carolina

Station ID	Camp Lejeune	NCSSLs	Adjusted	Adjusted	CJCA-SS154	CJCA-SS155	CJCA-SS156	CJCA-SS157	CJCA-SS158	CJCA-SS159	CJCA-SS160	CJCA-SS161	CJCA-SS162	CJCA	A-SS163
Sample ID	Background SS	(January, 2010)	Industrial	Residential	CJCA-SS154-09C	CJCA-SS155-09C	CJCA-SS156-09C	CJCA-SS157-09C	CJCA-SS158-09C	CJCA-SS159-09C	CJCA-SS160-09C	CJCA-SS161-09C	CJCA-SS162-09C	CJCA-SS163-09C	CJCA-SS163D-09C
Sample Date	2X Mean	(January, 2010)	Soil RSLs	Soil RSLs	07/10/09	07/09/09	07/09/09	07/09/09	07/09/09	07/08/09	07/08/09	07/09/09	07/08/09	07/08/09	07/08/09
Chemical Name															
Total Metals (mg/kg)															
Antimony	0.447		41	3.1	1.5 UJ	1.9 UJ	1.6 U	0.22 J-	1.6 UJ	1.7 U	1.7 U	1.6 UJ	1.7 UJ	0.47 J-	0.49 J-
Arsenic	0.626	5.8	1.6	0.39	<u>0.7</u> <u>J</u>	<u>2.1</u>	<u>1</u> <u>J</u>	<u>0.98</u> <u>J</u>	<u>1.1</u> <u>J</u>	<u>1.8</u>	<u>3</u>	<u>1.4</u> <u>J</u>	<u>1.1</u> <u>J</u>	<u>1.3</u> <u>J</u>	<u>1.2</u> <u>J</u>
Copper	4.83	700	4,100	310	0.52 J	1.5 J	0.62 J	0.85 J	2.2	3.4	1.1 J	1 J	0.51 J	1.2	1.2
Lead	12.3	270	800	400	5.1	8.2	8.1	23.2	6	12.5	8.6	6.7	7.2	6.1	5.9
Zinc	10.8	1,200	31,000	2,300	3.8 U	4.7 U	2 J	4.1 U	10.8	17	4.1 J	4.1 U	2.1	2.3	2.1
Wet Chemistry					NA	NIA.	NIA	NA	7.5	NIA	NIA	N/A	NA	NA.	NA.
pH (ph)					NA	NA	NA	NA	7.5	NA	NA	NA	NA	NA	NA

Notes:

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UXO-20 Surface Soil Analytical Results Camp Johnson Construction Area Focused PA/SI MCB CamLej, North Carolina

Station ID	Camp Lejeune	NCSSLs	Adjusted	Adjusted	CJCA	A-SS164	CJCA-SS165	CJCA-SS166	CJCA	A-SS167	CJCA-SS168	CJCA-SS169	CJCA-SS170	CJCA-SS171	CJCA-SS172	CJCA-SS173
Sample ID	Background SS	(January, 2010)	Industrial	Residential	CJCA-SS164-09C	CJCA-SS164D-09C	CJCA-SS165-09C	CJCA-SS166-09C	CJCA-SS167-09C	CJCA-SS167D-09C	CJCA-SS168-09C	CJCA-SS169-09C	CJCA-SS170-09C	CJCA-SS171-09C	CJCA-SS172-09C	CJCA-SS173-09C
Sample Date	2X Mean	(January, 2010)	Soil RSLs	Soil RSLs	07/09/09	07/09/09	07/09/09	07/09/09	07/09/09	07/09/09	07/08/09	07/08/09	07/09/09	07/08/09	07/08/09	07/09/09
Chemical Name																
Total Metals (mg/kg)																
Antimony	0.447		41	3.1	1.6 UJ	0.18 J-	1.6 UJ	0.22 J-	1.6 UJ	1.6 UJ	1.6 U	1.7 U	1.7 UJ	1.6 UJ	1.6 UJ	1.7 UJ
Arsenic	0.626	5.8	1.6	0.39	<u>0.69</u> <u>J</u>	<u>0.4</u> <u>J</u>	<u>0.42</u> <u>J</u>	<u>0.86</u> <u>J</u>	<u>0.65</u> <u>J</u>	<u>0.57</u> <u>J</u>	<u>0.7</u> <u>J</u>	<u>0.77</u> <u>J</u>	<u>1.1</u> <u>J</u>	<u>0.76</u> <u>J</u>	<u>0.83</u> <u>J</u>	<u>0.97</u> <u>J</u>
Copper	4.83	700	4,100	310	0.78 J	0.85 J	0.57 J	1 J	0.96 J	0.85 J	0.86 J	0.61 J	0.62 J	0.69 J	0.5 J	0.58 J
Lead	12.3	270	800	400	4.8	4.7	5	5.5	6.4	6.5	5.1	6.1	4.9	5.9	4.9	4.1
Zinc	10.8	1,200	31,000	2,300	4 U	4.4 U	4 U	4 U	4.1 U	4 U	4.1 U	4.2 U	4.3 U	4 U	4.1 U	4.1 U
Wet Chemistry																
pH (ph)					NA	NA	4.1	4.4	NA	NA	NA	NA	NA	NA	4.8	NA

Notes:

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UXO-20 Surface Soil Analytical Results Camp Johnson Construction Area Focused PA/SI MCB CamLej, North Carolina

Station ID	Camp Lejeune	NCSSLs	Adjusted	Adjusted	CJCA-SS174	CJCA	A-SS175	CJCA	-SS176	CJCA-SS177	CJCA-SS178	CJCA-SS179	CJCA-SS180	CJCA-SS181	CJCA-SS182	CJCA-SS183
Sample ID	Background SS	(January, 2010)	Industrial	Residential	CJCA-SS174-09C	CJCA-SS175-09C	CJCA-SS175D-09C	CJCA-SS176-09C	CJCA-SS176D-09C	CJCA-SS177-09C	CJCA-SS178-09C	CJCA-SS179-09C	CJCA-SS180-09C	CJCA-SS181-09C	CJCA-SS182-09C	CJCA-SS183-09C
Sample Date	2X Mean	(January, 2010)	Soil RSLs	Soil RSLs	07/08/09	07/08/09	07/08/09	07/09/09	07/09/09	07/08/09	07/08/09	07/08/09	07/08/09	07/08/09	07/08/09	07/08/09
Chemical Name																
Total Metals (mg/kg)																
Antimony	0.447		41	3.1	1.7 UJ	1.8 UJ	1.7 UJ	1.7 UJ	1.8 UJ	1.7 UJ	1.7 UJ	1.8 U	1.6 U	1.7 U	1.6 U	1.7 U
Arsenic	0.626	5.8	1.6	0.39	<u>0.96</u> <u>J</u>	<u>1.6</u> <u>J</u>	<u>2.1</u>	<u>1</u> <u>J</u>	<u>1.6</u> <u>J</u>	<u>0.71</u> <u>J</u>	3.3	<u>1.1</u> <u>J</u>	<u>0.93</u> <u>J</u>	<u>0.99</u> <u>J</u>	<u>1.8</u>	<u>1.1</u> <u>J</u>
Copper	4.83	700	4,100	310	1 J	1.2 J	1.2 J	0.64 J	0.91 J	1.2 J	1.9	0.85 J	0.35 J	0.84 J	0.98 J	1.1 J
Lead	12.3	270	800	400	6.2	5.5	5.7	4.4	4.7	6.8	10.7	6.1	5.1	6.5	7.9	7.4
Zinc	10.8	1,200	31,000	2,300	4.3 U	4.4 U	4.2 U	4.4 U	4.5 U	4.2 U	4.5	2.6 J	2.4 J	1.5 J	2.3 J	1.9 J
Wet Chemistry																
pH (ph)					NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

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UXO-20 Surface Soil Analytical Results Camp Johnson Construction Area Focused PA/SI

MCB CamLej, North Carolina

Station ID	Camp Lejeune	NCSSLs	Adjusted	Adjusted	CJCA-SS184	CJCA-SS185	CJCA	-SS186	CJCA-SS187	CJCA-SS188	CJCA-SS189	CJCA-SS190	CJCA-SS191	CJCA-SS192	CJCA	A-SS193
Sample ID	Background SS	(January, 2010)	Industrial	Residential	CJCA-SS184-09C	CJCA-SS185-09C	CJCA-SS186-09C	CJCA-SS186D-09C	CJCA-SS187-09C	CJCA-SS188-09C	CJCA-SS189-09C	CJCA-SS190-09C	CJCA-SS191-09C	CJCA-SS192-09C	CJCA-SS193-09C	CJCA-SS193D-09C
Sample Date	2X Mean	(January, 2010)	Soil RSLs	Soil RSLs	07/08/09	07/09/09	07/08/09	07/08/09	07/08/09	07/09/09	07/08/09	07/08/09	07/09/09	07/08/09	07/08/09	07/08/09
Chemical Name																
Total Metals (mg/kg)																
Antimony	0.447		41	3.1	1.6 U	1.7 UJ	1.7 U	1.7 U	1.8 U	1.5 UJ	1.6 U	1.6 U	1.5 UJ	1.7 U	0.32 J	1.6 U
Arsenic	0.626	5.8	1.6	0.39	<u>1.3</u> <u>J</u>	<u>1.2</u> <u>J</u>	<u>1.4</u> <u>J</u>	<u>1.2</u> <u>J</u>	<u>0.81</u> <u>J</u>	<u>0.43</u> <u>J</u>	<u>1</u> <u>J</u>	<u>0.52</u> <u>J</u>	<u>0.79</u> <u>J</u>	<u>0.63</u> <u>J</u>	<u>0.78</u> <u>J</u>	<u>1.1</u> <u>J</u>
Copper	4.83	700	4,100	310	1.5 J	0.93 J	0.83 J	0.84 J	0.86 J	0.39 J	0.45 J	0.41 J	0.57 J	0.57 J	14.8	14.5
Lead	12.3	270	800	400	8.6	5.8	5.9	6.2	5	5.5	5.4	4.3	4.8	5.1	5.1	5.4
Zinc	10.8	1,200	31,000	2,300	3.7 J	4.2 U	4.2 U	4.2 U	4.3 U	4.1	2.5 J	1.6 J	3.8 U	2.4 J	52.3	47.7
Wet Chemistry																
pH (ph)		-			NA	4.2	NA	NA	NA	4.6	NA	NA	4.8	NA	NA	NA

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UXO-20 Surface Soil Analytical Results Camp Johnson Construction Area Focused PA/SI MCB CamLej, North Carolina

Station ID	Camp Lejeune	NCSSLs	Adjusted	Adjusted	CJCA-SS194	CJCA-SS195	CJCA-SS196	CJCA-SS197	CJCA-SS198	CJCA-SS199	CJCA-SS200	CJCA-SS201	CJCA-SS202	CJCA	A-SS203	CJCA-SS204
Sample ID	Background SS	(January, 2010)	Industrial	Residential	CJCA-SS194-09C	CJCA-SS195-09C	CJCA-SS196-09C	CJCA-SS197-09C	CJCA-SS198-09C	CJCA-SS199-09C	CJCA-SS200-09C	CJCA-SS201-09C	CJCA-SS202-09C	CJCA-SS203-09C	CJCA-SS203D-09C	CJCA-SS204-09C
Sample Date	2X Mean	(January, 2010)	Soil RSLs	Soil RSLs	07/09/09	07/09/09	07/09/09	07/09/09	07/09/09	07/09/09	07/07/09	07/07/09	07/07/09	07/07/09	07/07/09	07/07/09
Chemical Name																
Total Metals (mg/kg)																
Antimony	0.447		41	3.1	0.19 J-	1.6 UJ	1.6 U	1.6 UJ	1.7 UJ	1.7 UJ	1.6 UJ	1.6 UJ	1.8 U	1.6 UJ	1.7 UJ	1.6 UJ
Arsenic	0.626	5.8	1.6	0.39	<u>0.86</u> <u>J</u>	<u>1.6</u>	<u>0.98</u> <u>J</u>	<u>0.99</u> <u>J</u>	<u>1.1</u> <u>J</u>	<u>1.2</u> <u>J</u>	<u>0.92</u> <u>J</u>	<u>0.95</u> <u>J</u>	<u>1.4</u> <u>J</u>	<u>0.77</u> <u>J</u>	<u>0.57</u> <u>J</u>	<u>0.8</u> <u>J</u>
Copper	4.83	700	4,100	310	0.76 J	4.2	0.83 J	1.1 J	1.2 J	0.87 J	0.63 J	0.46 J	1.2	0.73 J	0.75 J	1.1 J
Lead	12.3	270	800	400	7.6	8.3	10.1	6.6	5.2	5.9	5.6	5.5	9.3	3.9	4.9	5.8
Zinc	10.8	1,200	31,000	2,300	4.1 U	11.2	4.1 U	4 U	4.2 U	4.2 U	1.9	3.1	2.6	1.1 J	1.3 J	2.2 J
Wet Chemistry																
pH (ph)					4.2	7.8	NA	4.6	4.1	4.5	NA	NA	NA	NA	NA	NA

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UXO-20 Surface Soil Analytical Results Camp Johnson Construction Area Focused PA/SI MCB CamLej, North Carolina

Station ID Sample ID Sample Date	Camp Lejeune Background SS 2X Mean	NCSSLs (January, 2010)	Adjusted Industrial Soil RSLs	Adjusted Residential Soil RSLs	CJCA-SS205 CJCA-SS205-09C 07/07/09	CJCA-SS206 CJCA-SS206-09C 07/07/09	CJCA-SS207 CJCA-SS207-09C 07/07/09	CJCA-SS208 CJCA-SS208-09C 07/07/09	CJCA-SS209 CJCA-SS209-09C 07/07/09	CJCA-SS210 CJCA-SS210-09C 07/07/09	CJCA-SS211 CJCA-SS211-09C 07/07/09	CJCA-SS212 CJCA-SS212-09C 07/09/09	CJCA-SS213 CJCA-SS213-09C 07/07/09	CJCA-SS214 CJCA-SS214-09C 07/07/09
Chemical Name														
Total Metals (mg/kg)														
Antimony	0.447		41	3.1	1.7 UJ	1.7 U	1.7 U	1.6 UJ	1.6 UJ	1.6 UJ	1.7 UJ	1.6 UJ	1.6 UJ	1.6 UJ
Arsenic	0.626	5.8	1.6	0.39	<u>1.8</u>	<u>1.4</u> <u>J</u>	<u>0.82</u> <u>J</u>	<u>0.89</u> <u>J</u>	<u>0.98</u> <u>J</u>	<u>0.55</u> <u>J</u>	<u>0.78</u> <u>J</u>	<u>0.89</u> <u>J</u>	<u>0.74</u> <u>J</u>	<u>0.96</u> <u>J</u>
Copper	4.83	700	4,100	310	1 J	0.98	4.3	1.3 J	3.4	2.9	1.5 J	0.67 J	4.6	1.7
Lead	12.3	270	800	400	5.8	5.4	6.6	6	14.1	12.9	7.2	6	16.6	10.1
Zinc	10.8	1,200	31,000	2,300	2.6 J	2.4	4.5	7.3	12.2	28.3	3.8 J	4 U	15.2	5.5
Wet Chemistry pH (ph)					NA	NA	NA	NA	NA	8.1	NA	4.7	NA	NA

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UXO-20 Subsurface Soil Analytical Results Camp Johnson Construction Area Focused PA/SI Report MCB CamLej, North Carolina

Station ID Sample ID	Camp Lejeune Background SB 2X	NCSSLs (January, 2010)	Adjusted Industrial Soil	Adjusted Residential Soil	CJCA-SB01 CJCA-SB01-2-7-09C	CJCA-SB02 CJCA-SB02-2-6-09C	CJCA-SB03 CJCA-SB03-2-7-09C	CJCA-SB04 CJCA-SB04-4-7-09C	CJCA-SB05 CJCA-SB05-2-7-09C	CJCA-SB06 CJCA-SB06-2-7-09C	CJCA-SB07 CJCA-SB07-4-7-09C	CJCA-SB08 CJCA-SB08-2-7-09C
Sample Date	Mean	2010)	RSLs	RSLs	07/26/09	07/29/09	07/26/09	07/29/09	07/26/09	07/29/09	07/26/09	07/29/09
Chemical Name												
Total Metals (mg/kg)												
Antimony	0.36		41	3.1	1.7 U	0.21 J-	1.9 U	1.6 UJ	1.7 U	1.5 UJ	1.5 U	1.6 UJ
Arsenic	2.12	5.8	1.6	0.39	<u>0.61</u> J	1.8 U	<u>0.57</u> <u>J</u>	<u>0.48</u> <u>J</u>	<u>0.67</u> <u>J</u>	<u>0.72</u> <u>J</u>	<u>0.51</u> <u>J</u>	<u>4.4</u>
Copper	2.56	700	4,100	310	0.28 J	1.4 J	0.55 J	0.48 J	0.77 J	0.47 J	0.51 J	0.72 J
Lead	8.49	270	800	400	3.4	4.2	4.3	2.6	3.3	1.9	1.8	4
Zinc	6.59	1,200	31,000	2,400	4.2 U	4.6 U	4.8 U	4.1 U	4.1 U	3.7 U	3.8 U	3.9 U
Wet Chemistry												
рН					NA	NA	3.6	NA	NA	NA	NA	NA

Shading indicates exceedance of two times the mean base background concentration for subsurface soil

Bold box indicates exceedance of NCSSLs

Bold text indicates exceedance of Adjusted Industrial Soil RSLs

Underline indicates exceedance of Adjusted Residential Soil RSLs

RSLs were adjusted for noncarcinogens to account for exposure to multiple constituents

NA - not analyzed

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UXO-20 Subsurface Soil Analytical Results Camp Johnson Construction Area Focused PA/SI Report MCB CamLej, North Carolina

Station ID	Camp Lejeune	NCSSLs (January,	Adjusted	Adjusted	CJC	A-SB09	CJCA-SB10	CJCA-SB11	CJCA-SB12	CJCA-SB13	CJCA-SB14	CJCA-SB15	CJCA-SB16
Sample ID	Background SB 2X	2010)	Industrial Soil	Residential Soil	CJCA-SB09-2-4-09C	CJCA-SB09D-2-4-09C	CJCA-SB10-2-6-09C	CJCA-SB11-2-7-09C	CJCA-SB12-2-7-09C	CJCA-SB13-2-7-09C	CJCA-SB14-2-7-09C	CJCA-SB15-6-7-09C	CJCA-SB16-2-7-09C
Sample Date	Mean	2010)	RSLs	RSLs	07/26/09	07/26/09	07/28/09	07/26/09	07/29/09	07/26/09	07/28/09	07/25/09	07/25/09
Chemical Name													
Total Metals (mg/kg)													
Antimony	0.36		41	3.1	1.6 U	1.7 U	1.6 UJ	1.5 U	1.5 UJ	1.8 U	1.5 UJ	1.6 U	1.5 U
Arsenic	2.12	5.8	1.6	0.39	<u>1.3</u> <u>J</u>	<u>0.81</u> <u>J</u>	0.25 J	<u>1.3</u> <u>J</u>	<u>1.1</u> <u>J</u>	<u>1.2</u> <u>J</u>	0.17 J	3.8 U	1.5 U
Copper	2.56	700	4,100	310	3	6.9	0.64 J	0.55 J	0.58 J	0.51 J	0.27 J	1.3 J	0.77 J
Lead	8.49	270	800	400	4.7	4.5	2.5	2.5	2	2.6	1.6	6.2	3.1
Zinc	6.59	1,200	31,000	2,400	16	49	4 U	3.8 U	3.8 U	4.6 U	3.8 U	4.4	3.7 U
Wet Chemistry					NA		NA	47	114		NA NA	NA	NIA .
рн					NA	NA	NA	4.7	NA	NA	NA	NA	NA

Notes:
Shading indicates exceedance of two times the mean base background concentration for subsurface soil
Bold box indicates exceedance of NCSSLs
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Underline indicates exceedance of Adjusted Residential Soil RSLs

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UXO-20 Subsurface Soil Analytical Results Camp Johnson Construction Area Focused PA/SI Report MCB CamLej, North Carolina

Station ID	Camp Lejeune	NCSSLs (January,	Adjusted	Adjusted	CJCA-SB18	CJCA-SB19	CJC	A-SB20	CJCA-SB21	CJCA-SB22	CJCA-SB23	CJCA-SB24	CJCA-SB25
Sample ID	Background SB 2X	2010)	Industrial Soil	Residential Soil	CJCA-SB18-2-5-09C	CJCA-SB19-2-7-09C	CJCA-SB20-2-7-09C	CJCA-SB20D-2-7-09C	CJCA-SB21-2-7-09C	CJCA-SB22-4-7-09C	CJCA-SB23-2-3-09C	CJCA-SB24-2-4-09C	CJCA-SB25-6-7-09C
Sample Date	Mean	2010)	RSLs	RSLs	07/25/09	07/28/09	07/25/09	07/25/09	07/28/09	07/25/09	07/28/09	07/24/09	07/28/09
Chemical Name													
Total Metals (mg/kg)													
Antimony	0.36		41	3.1	1.7 U	1.6 UJ	1.7 U	1.8 U	1.5 UJ	1.5 U	1.6 UJ	1.6 U	1.9 UJ
Arsenic	2.12	5.8	1.6	0.39	1.7 U	<u>0.62</u> <u>J</u>	1.7 U	2.6 U	<u>0.45</u> <u>J+</u>	1.5 U	<u>0.79</u> <u>J+</u>	1.6 U	<u>13.2</u> <u>J+</u>
Copper	2.56	700	4,100	310	0.55 J	0.35 J	1.7 U	1.9	0.53 J	1.5 U	0.34 J	0.54 J	4.3
Lead	8.49	270	800	400	3.2	2.2	1.5 J	7	2.7	1.5	5	6.8	12.1
Zinc	6.59	1,200	31,000	2,400	2.1 J	3.9 U	4.1 U	4.1 U	3.8 U	3.7 U	3.9 U	6.5	9.6
Wet Chemistry													
рН					4.4	NA	NA	NA	NA	NA	NA	NA	NA

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UXO-20 Subsurface Soil Analytical Results Camp Johnson Construction Area Focused PA/SI Report MCB CamLej, North Carolina

Station ID	Camp Lejeune	NCSSLs (January,	Adjusted	Adjusted	CJCA-SB26	CJCA-SB27	CJCA-SB28	CJCA-SB29	CJCA-SB30		A-SB31	CJCA-SB32	CJCA-SB33
Sample ID	Background SB 2X	2010)	ilidustriai 3011	Residential Soil	CJCA-SB26-4-7-09C	CJCA-SB27-4-7-09C	CJCA-SB28-2-4-09C	CJCA-SB29-2-7-09C	CJCA-SB30-2-7-09C	CJCA-SB31-4-7-09C	CJCA-SB31D-4-7-09C	CJCA-SB32-2-7-09C	CJCA-SB33-4-6-09C
Sample Date	Mean	2010)	RSLs	RSLs	07/23/09	07/28/09	07/23/09	07/28/09	07/23/09	07/23/09	07/23/09	07/22/09	07/23/09
Chemical Name													
Total Martala (over the co													
Total Metals (mg/kg)													
Antimony	0.36		41	3.1	1.9 UJ	1.9 UJ	1.7 UJ	1.9 UJ	1.8 U	1.9 U	2 U	1.9 U	1.8 U
Arsenic	2.12	5.8	1.6	0.39	<u>6.9</u>	<u>8.9</u> <u>J+</u>	<u>2.6</u>	<u>11</u>	<u>4.5</u> <u>J-</u>	<u>13.7</u> <u>J-</u>	<u>14.5</u> <u>J-</u>	<u>15.8</u> <u>J-</u>	<u>3.7</u> <u>J-</u>
Copper	2.56	700	4,100	310	2.7 U	3.6	1.7 U	4.1	3.1	4	4.1	3.9	2.7
Lead	8.49	270	800	400	8.6	12.9	7.8	13.7	12.5	14.9	16.4	13.1	12
Zinc	6.59	1,200	31,000	2,400	6.9	8.3	4.3 U	7.6	5	7.8	7.2	8.3	7.4
Wet Chemistry													
рН					NA	NA	NA	4.2	NA	NA	NA	NA	NA

Notes:
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UXO-20 Subsurface Soil Analytical Results Camp Johnson Construction Area Focused PA/SI Report MCB CamLej, North Carolina

Station ID Sample ID Sample Date	Camp Lejeune Background SB 2X Mean	NCSSLs (January, 2010)	Adjusted Industrial Soil RSLs	Adjusted Residential Soil RSLs	CJCA-SB34 CJCA-SB34-2-4-09C 07/28/09	CJCA-SB35 CJCA-SB35-2-4-09C 07/25/09	CJCA-SB36 CJCA-SB36-4-7-09C 07/28/09	CJCA-SB37 CJCA-SB37-6-7-09C 07/24/09	CJCA-SB38 CJCA-SB38-2-4-09C 07/24/09	CJCA-SB39 CJCA-SB39-2-4-09C 07/23/09	CJCA-SB40 CJCA-SB40-4-7-09C 07/28/09	CJCA-SB41 CJCA-SB41-4-6-09C 07/23/09	CJCA-SB42 CJCA-SB42-2-7-09C 07/28/09
Chemical Name													
Total Metals (mg/kg)													
Antimony	0.36		41	3.1	1.7 UJ	1.7 U	1.9 UJ	1.9 UJ	1.7 UJ	1.9 UJ	2 UJ	1.7 U	2 UJ
Arsenic	2.12	5.8	1.6	0.39	<u>20.8</u> <u>J+</u>	1.7 U	3.3 J+	<u>4.2</u>	<u>2.6</u>	<u>13.1</u>	<u>7.4</u> <u>J+</u>	<u>2.6</u> <u>J-</u>	<u>17.7</u> <u>J+</u>
Copper	2.56	700	4,100	310	3.6	0.99 J	2.2	3.5	1.8 U	2.6 U	4.1	1.3 J	4.2
Lead	8.49	270	800	400	9.7	13.6	11.2	10.4	7.5	11.9	14.6	8.2	14.2
Zinc	6.59	1,200	31,000	2,400	5.2	4.3 U	6.8	8.9	4.2 U	6.4	7.9	3.3 J	8.2
Wet Chemistry													
рН					NA	NA	NA	NA	NA	NA	4.4	NA	NA

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UXO-20 Subsurface Soil Analytical Results Camp Johnson Construction Area Focused PA/SI Report MCB CamLej, North Carolina

Station ID	Camp Lejeune	NCSSLs (January,	Adjusted	Adjusted	CJCA-SB43	CJCA-SB44	CJCA	A-SB45	CJCA-SB46	CJCA-SB47	CJCA-SB48	CJCA-SB49
Sample ID	Background SB 2X	2010)	Industrial Soil	Residential Soil	CJCA-SB43-6-7-09C	CJCA-SB44-6-7-09C	CJCA-SB45-2-5-09C	CJCA-SB45D-2-5-09C	CJCA-SB46-4-7-09C	CJCA-SB47-6-7-09C	CJCA-SB48-4-6-09C	CJCA-SB49-2-4-09C
Sample Date	Mean	2010)	RSLs	RSLs	07/22/09	07/23/09	07/22/09	07/22/09	07/27/09	07/25/09	07/27/09	07/25/09
Chemical Name												
Total Metals (mg/kg)												
Antimony	0.36		41	3.1	1.9 U	2 U	1.8 U	1.8 U	2 UJ	1.9 U	1.8 UJ	1.6 U
Arsenic	2.12	5.8	1.6	0.39	<u>5.3</u> <u>J-</u>	<u>17.8</u> <u>J-</u>	<u>11.6</u> <u>J-</u>	<u>2.9</u> <u>J-</u>	<u>14.4</u> <u>J+</u>	<u>6.5</u>	<u>5.7</u> <u>J+</u>	3 U
Copper	2.56	700	4,100	310	3.2	4.7	4.4	2.1	2.5	2.5	2.2	1.3 J
Lead	8.49	270	800	400	12	14.5	16.1	11.1	11	11.9	8.7	7.6
Zinc	6.59	1,200	31,000	2,400	7.9	7.9	5	5.3	6.5	7.6	6.9	4.2
Wet Chemistry												
рН					NA	NA	NA	NA	NA	NA	4.6	NA

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UXO-20 Subsurface Soil Analytical Results Camp Johnson Construction Area Focused PA/SI Report MCB CamLej, North Carolina

Station ID	Camp Lejeune	NCSSLs (January,	Adjusted	Adjusted	CJC	A-SB50	CJCA-SB51	CJCA-SB52	CJCA-SB53	CJCA-SB54	CJCA-SB55	CJCA-SB56	CJCA-SB57	CJCA-SB58
Sample ID	Background SB 2X	2010)	Industrial Soil	Residential Soil	CJCA-SB50-4-6-09C	CJCA-SB50D-4-6-09C	CJCA-SB51-2-7-09C	CJCA-SB52-4-6-09C	CJCA-SB53-2-7-09C	CJCA-SB54-6-7-09C	CJCA-SB55-4-6-09C	CJCA-SB56-2-7-09C	CJCA-SB57-2-4-09C	CJCA-SB58-2-6-09C
Sample Date	Mean	2010)	RSLs	RSLs	07/27/09	07/27/09	07/25/09	07/27/09	07/22/09	07/22/09	07/22/09	07/27/09	07/23/09	07/27/09
Chemical Name														
Total Metals (mg/kg)														
Antimony	0.36		41	3.1	1.7 UJ	1.7 UJ	1.8 U	1.7 UJ	1.8 U	1.8 U	1.9 U	1.7 UJ	1.7 U	1.8 UJ
Arsenic	2.12	5.8	1.6	0.39	<u>6</u> <u>J+</u>	4.6 J+	<u>2.4</u>	<u>0.98</u> <u>J+</u>	21.1 J+	<u>14.3</u> <u>J+</u>	9.2 J+	4.5 J+	2.3 <u>J-</u>	<u>1.9</u> <u>J+</u>
Copper	2.56	700	4,100	310	1.8	1.7	1.3 J	0.49 J	3.5	3.6	3	1.9	0.75 J	2
Lead	8.49	270	800	400	8.7	8.8	7.5	6.1	11.6	14	12.1	8.5	5.9	9
Zinc	6.59	1,200	31,000	2,400	5	5.5	4.4 U	4.2 U	7.7	6.3	5.7	4.4 U	3.3 J	5.3
Wet Chemistry														
рН					NA	NA	NA	NA	4.3	NA	NA	NA	NA	4.4

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Bold text indicates exceedance of Adjusted Industrial Soil RSLs

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Station ID	Camp Lejeune	NCSSLs (January,	Adjusted	Adjusted	CJC	A-SB59	CJCA-SB60	CJCA-SB61	CJCA-SB62	CJCA-SB63	CJC	A-SB64	CJCA-SB65	CJCA-SB66
Sample ID	Background SB 2X	2010)	Industrial Soil	Residential Soil	CJCA-SB59-2-4-09C	CJCA-SB59D-2-4-09C	CJCA-SB60-4-6-09C	CJCA-SB61-2-4-09C	CJCA-SB62-2-4-09C	CJCA-SB63-2-4-09C	CJCA-SB64-4-7-09C	CJCA-SB64D-4-7-09C	CJCA-SB65-2-4-09C	CJCA-SB66-4-6-09C
Sample Date	Mean	2010)	RSLs	RSLs	07/23/09	07/23/09	07/22/09	07/22/09	07/22/09	07/23/09	07/27/09	07/27/09	07/22/09	07/22/09
Chemical Name														
Total Metals (mg/kg)														
Antimony	0.36		41	3.1	1.8 U	1.8 U	1.8 U	1.6 U	1.8 U	1.6 U	1.9 UJ	2 UJ	1.7 U	2 U
Arsenic	2.12	5.8	1.6	0.39	3.9 <u>J-</u>	3.5 J-	<u>14.8</u> <u>J+</u>	<u>1.1</u> J+	4.7 J+	<u>2.6</u> <u>J-</u>	<u>12</u> <u>J+</u>	<u>15</u> <u>J+</u>	<u>5.6</u> <u>J-</u>	<u>12.3</u> <u>J-</u>
Copper	2.56	700	4,100	310	3	2.3	4.6	1 J	3.2	0.65 J	4.6	4.2	0.84 J	2.9
Lead	8.49	270	800	400	11.5	10.1	17.3	4.9	10.8	5	14.4	13.3	7.2	9.7
Zinc	6.59	1,200	31,000	2,400	6.7	6.3	7.7	3.9 U	6.6	2 J	8.7	9	3.2 J	8.7
Wet Chemistry														
рН					NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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mg/kg - milligrams per kilogram

UXO-20 Subsurface Soil Analytical Results Camp Johnson Construction Area Focused PA/SI Report MCB CamLej, North Carolina

ckground SB 2X	NCSSLs (January,	Adjusted Industrial Soil	Adjusted Residential Soil	CJCA-SB67 CJCA-SB67-6-7-09C	CJCA-SB68 CJCA-SB68-4-6-09C	CJCA-SB69 CJCA-SB69-6-7-09C	CJCA- CJCA-SB70-4-6-09C	A-SB70 CJCA-SB70D-4-6-09C	CJCA-SB71 CJCA-SB71-6-7-09C	CJCA-SB72 CJCA-SB72-4-6-09C	CJCA-SB73 CJCA-SB73-4-6-09C	CJCA-SB74 CJCA-SB74-2-7-09C
Mean	2010)	RSLs	RSLs	07/22/09	07/22/09	07/21/09	07/22/09	07/22/09	07/21/09	07/21/09	07/21/09	07/21/09
0.36		41	3.1	1.9 U	1.8 U	2.1 U	2 U	1.9 U	3.7 U	1.9 U	1.9 U	1.7 U
2.12	5.8	1.6	0.39	<u>11.6</u> <u>J-</u>	<u>11.6</u> <u>J+</u>	<u>10.1</u> <u>J-</u>	<u>14.2</u> <u>J+</u>	<u>4.7</u> <u>J+</u>	<u>46.5</u> <u>J-</u>	<u>21.3</u> <u>J-</u>	<u>14.1</u> <u>J-</u>	<u>1.1</u> <u>J-</u>
2.56	700	4,100	310	4.5	3.7	4	4	3.7	6.8	5.4	4.2	0.66 J
8.49	270	800	400	15.6	13.7	15.4	15.4	14.4	17.6	13.8	14	4
6.59	1,200	31,000	2,400	8.2	7.4	7.9	8	8	9.7	8.4	8.9	4.2 U
				4.6	NIA	NA	NIA	NA	NIA	NIA	4.6	NA
	0.36 2.12 2.56 8.49	0.36 2.12 5.8 2.56 700 8.49 270 6.59 1,200	0.36 41 2.12 5.8 1.6 2.56 700 4,100 8.49 270 800 6.59 1,200 31,000	0.36 41 3.1 2.12 5.8 1.6 0.39 2.56 700 4,100 310 8.49 270 800 400 6.59 1,200 31,000 2,400	0.36 41 3.1 1.9 U 2.12 5.8 1.6 0.39 11.6 J- 2.56 700 4,100 310 4.5 8.49 270 800 400 15.6 6.59 1,200 31,000 2,400 8.2	0.36 41 3.1 1.9 U 1.8 U 2.12 5.8 1.6 0.39 11.6 J- 11.6 J+ 2.56 700 4,100 310 4.5 3.7 8.49 270 800 400 15.6 13.7 6.59 1,200 31,000 2,400 8.2 7.4	0.36 41 3.1 1.9 U 1.8 U 2.1 U 2.12 5.8 1.6 0.39 11.6 J- 11.6 J+ 10.1 J- 2.56 700 4,100 310 4.5 3.7 4 8.49 270 800 400 15.6 13.7 15.4 6.59 1,200 31,000 2,400 8.2 7.4 7.9	0.36 41 3.1 1.9 U 1.8 U 2.1 U 2 U 2.12 5.8 1.6 0.39 11.6 J- 11.6 J+ 10.1 J- 14.2 J+ 2.56 700 4,100 310 4.5 3.7 4 4 8.49 270 800 400 15.6 13.7 15.4 15.4 6.59 1,200 31,000 2,400 8.2 7.4 7.9 8	0.36 41 3.1 1.9 U 1.8 U 2.1 U 2 U 1.9 U 2.12 5.8 1.6 0.39 11.6 J- 11.6 J+ 10.1 J- 14.2 J+ 4.7 J+ 2.56 700 4,100 310 4.5 3.7 4 4 3.7 8.49 270 800 400 15.6 13.7 15.4 15.4 15.4 14.4 6.59 1,200 31,000 2,400 8.2 7.4 7.9 8 8	0.36 41 3.1 1.9 U 1.8 U 2.1 U 2 U 1.9 U 3.7 U 2.12 5.8 1.6 0.39 11.6 J- 11.6 J+ 10.1 J- 14.2 J+ 4.7 J+ 46.5 J- 15.4 4.7 J+ 46.5 J- 15.4 4.5 J- 15.4 4.7 J- 15.4	0.36 41 3.1 1.9 U 1.8 U 2.1 U 2 U 1.9 U 3.7 U 1.9 U 2.12 5.8 1.6 0.39 11.6 J- 11.6 J+ 10.1 J- 14.2 J+ 4.7 J+ 46.5 J- 21.3 J- 2.56 700 4,100 310 4.5 3.7 4 4 3.7 6.8 5.4 8.49 270 800 400 15.6 13.7 15.4 15.4 14.4 17.6 13.8 6.59 1,200 31,000 2,400 8.2 7.4 7.9 8 8 9.7 8.4	0.36

Notes:
Shading indicates exceedance of two times the mean base background concentration for subsurface soil
Bold box indicates exceedance of NCSSLs
Bold text indicates exceedance of Adjusted Industrial Soil RSLs

Underline indicates exceedance of Adjusted Residential Soil RSLs

RSLs were adjusted for noncarcinogens to account for exposure to multiple constituents

NA - not analyzed

- J Analyte present, value may or may not be accurate or precise
- J- Analyte present, value may be biased low, actual value may be higher
- J+ Analyte present, value may be biased high, actual value may be lower
- U The material was analyzed for, but not detected
- UJ Analyte not detected, quantitation limit may be inaccurate

mg/kg - milligrams per kilogram

UXO-20 Subsurface Soil Analytical Results Camp Johnson Construction Area Focused PA/SI Report MCB CamLej, North Carolina

Station ID	Camp Lejeune	NCCCI a / January	Adjusted	Adjusted	CJCA-SB75	CJCA-SB76	CJCA-SB77	CJCA-SB78
Sample ID	Background SB 2X	NCSSLs (January, 2010)	Industrial Soil	Residential Soil	CJCA-SB75-4-6-09C	CJCA-SB76-4-6-09C	CJCA-SB77-2-4-09C	CJCA-SB78-4-6-09C
Sample Date	Mean	2010)	RSLs	RSLs	07/21/09	07/21/09	07/21/09	07/21/09
Chemical Name								
Total Metals (mg/kg)								
Antimony	0.36		41	3.1	1.9 U	1.8 U	1.5 U	3.5 U
Arsenic	2.12	5.8	1.6	0.39	<u>7</u> <u>J-</u>	<u>4.9</u> <u>J-</u>	<u>0.92</u> <u>J-</u>	<u>24.8</u> <u>J-</u>
Copper	2.56	700	4,100	310	4.1	3.5	0.5 J	6.3
Lead	8.49	270	800	400	14.2	10.4	4.1	14.8
Zinc	6.59	1,200	31,000	2,400	8.1	5.4	3.8 U	10.2
Wet Chemistry								
рН					NA	NA	NA	NA

Shading indicates exceedance of two times the mean base background concentration for subsurface soil

Bold box indicates exceedance of NCSSLs

Bold text indicates exceedance of Adjusted Industrial Soil RSLs

Underline indicates exceedance of Adjusted Residential Soil RSLs

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- U The material was analyzed for, but not detected
- UJ Analyte not detected, quantitation limit may be inaccurate

mg/kg - milligrams per kilogram

UXO-20 Groundwater Analyical Results Camp Johnson Construction Area Focused PA/SI Report MCB CamLej, North Carolina

Station ID	Camp Lejeune	NC2GWQS	Adjusted Tap	CJCA-TW01	CJCA-TW02	CJCA-TW03	CJCA-TW04	CJCA-TW05	CJCA-TW06	CJCA-TW08	CJCA-TW09	CJCA-TW10	CJCA-TW11	CJCA-TW12	CJCA-TW13	CJCA-TW14	CJCA	A-TW15
Sample ID	Background GW 2X		Water RSLs	CJCA-TW01-09C	CJCA-TW02-09C	CJCA-TW03-09C	CJCA-TW04-09C	CJCA-TW05-09C	CJCA-TW06-09C	CJCA-TW08-09C	CJCA-TW09-09C	CJCA-TW10-09C	CJCA-TW11-09C	CJCA-TW12-09C	CJCA-TW13-09C	CJCA-TW14-09C	CJCA-TW15-09C	CJCA-TW15D-09C
Sample Date	Mean	(January, 2010)	Water NOLS	07/28/09	07/28/09	07/28/09	07/29/09	07/28/09	07/28/09	07/27/09	07/26/09	07/27/09	07/27/09	07/26/09	07/26/09	07/26/09	07/26/09	07/26/09
Chemical Name																		
Total Metals (µg/l)																		
Arsenic	5.77	10	0.045	20 U	20 U	20 U	3 J	20 U	20 U	2.2 J	20 U	2.6 J	20 U	20 U	20 U	2.9 J	20 U	20 U
Copper	2.76	1,000	150	100 U	20 U	7.4 J	20 U	20 U	3.2 J	20 U	4.4 J	20 U	20 U	20 U	3.9 J	20 U	20 U	3.5 J
Lead	2.8	15		19.1 J	20 U	14.1 J	20 U											
Zinc	42.1	1,000	1,100	250 U	18 J	18.5 J	4.5 J	18.2 J	8.4 J	6.9 J	14.3 J	10.4 J	18.6 J	6.5 J	17.4 J	36.8 J	6.9 J	14.2 J
Dissolved Metals (µg/l)																		
Arsenic	5.77	10	0.045	20 U	NA	20 U	NA											
Copper	2.76	1,000	150	20 U	NA	20 U	NA											
Lead	2.8	15		2 J	NA	20 U	NA											
Zinc	42.1	1,000	1,100	50 U	NA	10.1 J	NA											

Notes:
Shading indicates exceedance of two times the mean base background concentration
Bold box indicates exceedance of NCGWQS
Bold text indicates exceedance of Adjusted Tap Water RSLs

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µg/l - micrograms per liter

UXO-20 Groundwater Analyical Results Camp Johnson Construction Area Focused PA/SI Report MCB CamLej, North Carolina

Station ID	Camp Lejeune	NC2GWQS	Adjusted Tap	CJCA-TW16	CJCA-TW17	CJCA-TW18	CJCA-TW19	CJCA-TW20	CJCA-TW21	CJCA-TW22	CJCA-TW23	CJCA	A-TW24	CJCA-TW25	CJCA-TW26	CJCA-TW27	CJCA-TW28	CJCA-TW29
Sample ID	Background GW 2X	(January, 2010)		CJCA-TW16-09C	CJCA-TW17-09C	CJCA-TW18-09C	CJCA-TW19-09C	CJCA-TW20-09C	CJCA-TW21-09C	CJCA-TW22-09C	CJCA-TW23-09C	CJCA-TW24-09C	CJCA-TW24D-09C	CJCA-TW25-09C	CJCA-TW26-09C	CJCA-TW27-09C	CJCA-TW28-09C	CJCA-TW29-09C
Sample Date	Mean	(January, 2010)	Water NOLS	07/25/09	07/24/09	07/26/09	07/26/09	07/26/09	07/26/09	07/24/09	07/23/09	07/27/09	07/27/09	07/27/09	07/27/09	07/23/09	07/23/09	07/25/09
Chemical Name																		
Total Metals (µg/l)																		
Arsenic	5.77	10	0.045	20 U	3.1 J	20 U	20 U	20 U	20 U	20 U	20 U	9.4 J	2.9 J	20 U				
Copper	2.76	1,000	150	20 U	10.4 J	20 U	2.7 J	20 U	20 U	20 U	20 U	5.5 J	10 J	20 U				
Lead	2.8	15		20 U	11.5 J	20 U	20 U	2 J	10.3 J	2.3 J	20 U							
Zinc	42.1	1,000	1,100	32 J	160	112	7.5 J	81.5	21.2 J	5.6 J	69.8	11.6 J	14.8 J	14.3 J	11.9 J	63.5	56.7	15.1 J
Dissolved Metals (µg/l)																		
Arsenic	5.77	10	0.045	NA	20 U	NA	NA	NA	NA	20 U	20 U	NA	NA	NA	NA	20 U	20 U	NA
Copper	2.76	1,000	150	NA	20 U	NA	NA	NA	NA	20 U	20 U	NA	NA	NA	NA	20 U	3.6 J	NA
Lead	2.8	15		NA	20 U	NA	NA	NA	NA	2 J	20 U	NA	NA	NA	NA	20 U	20 U	NA
Zinc	42.1	1,000	1,100	NA	82.3	NA	NA	NA	NA	4.3 J	32.4 J	NA	NA	NA	NA	50 U	39.6 J	NA

Notes:
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Bold box indicates exceedance of NCGWQS
Bold text indicates exceedance of Adjusted Tap Water RSLs

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U - The material was analyzed for, but not detected

µg/l - micrograms per liter

UXO-20 Groundwater Analyical Results Camp Johnson Construction Area Focused PA/SI Report MCB CamLej, North Carolina

Station ID	Camp Lejeune			CJCA-TW30	CJCA-TW31	CJCA-TW32	CJCA-TW33	CJCA-TW34	CJCA	N-TW35	CJCA-TW36	CJCA-TW37	CJCA-TW38
	Background GW 2X	NC2GWQS	Adjusted Tap Water RSLs	CJCA-TW30-09C		CJCA-TW32-09C	CJCA-TW33-09C	CJCA-TW34-09C	CJCA-TW35-09C	CJCA-TW35D-09C	CJCA-TW36-09C	CJCA-TW37-09C	CJCA-TW38-09C
Sample Date	Mean	(January, 2010)	water RSLS	07/25/09	07/23/09	07/25/09	07/25/09	07/25/09	07/22/09	07/22/09	07/22/09	07/22/09	07/23/09
Chemical Name													
Total Metals (µg/l)													
Arsenic	5.77	10	0.045	6.1 J	4 J	2.6 J	3.5 J	20 U	20 U	20 U	5.5 J	20 U	20 U
Copper	2.76	1,000	150	20 U	4.2 J	20 U	20 U	6.6 J	20 U	20 U	20 U	2.7 J	20 U
Lead	2.8	15		20 U	6.6 J	3.6 J	2.2 J	4.5 J	20 U	20 U	2 J	20 U	2.9 J
Zinc	42.1	1,000	1,100	16.9 J	91.6	53.8	77.6	19.7 J	8.3 J	10.4 J	4.3 J	42.6 J	30.9 J
Dissolved Metals (µg/l)													
Arsenic	5.77	10	0.045	NA	20 U	NA	NA	NA	20 U	20 U	4.9 J	20 U	20 U
Copper	2.76	1,000	150	NA	20 U	NA	NA	NA	20 U	20 U	20 U	3.1 J	20 U
Lead	2.8	15		NA	20 U	NA	NA	NA	20 U	20 U	20 U	20 U	20 U
Zinc	42.1	1,000	1,100	NA	61.7	NA	NA	NA	8 J	8.4 J	50 U	42.5 J	27 J

Notes:
Shading indicates exceedance of two times the mean base background concentration

RSLs were adjusted for noncarcinogens to account for exposure to multiple constituents

NA - not analyzed

J - Analyte present, value may or may not be accurate or precise

U - The material was analyzed for, but not detected

µg/l - micrograms per liter

TABLE 5-4IR Site 15 Surface Soil Analytical Results Camp Johnson Construction Area Focused PA/SI Report
MCB CamLej, North Carolina

Station ID	Camp Lejeune	NOON.	Adjusted	Adjusted	IR15-SS01	IR15-SS02	IR1	5-SS03	IR15-SS04	IR15-SS05	IR15-SS06	IR15-SS07	IR15-SS08	IR15-SS09	IR15-SS10
Sample ID	Background SS	NCSSLs (January, 2010)	Industrial Soil	Residential Soil	IR15-SS01-00-01-09C	IR15-SS02-00-01-09C	IR15-SS03-00-01-09C	IR15-SS03D-00-01-09C	IR15-SS04-00-01-09C	IR15-SS05-00-01-09C	IR15-SS06-00-01-09C	IR15-SS07-00-01-09C	IR15-SS08-00-01-09C	IR15-SS09-00-01-09C	IR15-SS10-00-01-09C
Sample Date	2X Mean	(January, 2010)	RSLs	RSLs	07/10/09	07/10/09	07/10/09	07/10/09	07/10/09	07/10/09	07/10/09	07/10/09	07/10/09	07/10/09	07/10/09
Chemical Name															
Volatile Organic Compounds (µg/kg)															
2-Butanone		16.000	20.000.000	2,800,000	22 J	9.2 R	8.5 UJ	11 R	4.4 J	NA	11 R	4.5 J	40 J	11 UJ	9.5 UJ
Acetone		24,000	63,000,000	6,100,000	240 J	9.2 R	14 J	11 R	52 J	NA	77 J	160 J	1.700 J	11 UJ	150 J
Chloroform		340	1,500	300	5.2 J	4.6 R	4.2 UJ	5.4 R	5.9 UJ	NA	5.4 R	5.3 U	7 UJ	5.5 UJ	4.7 UJ
Methyl acetate			29,000,000	7,800,000	5.8 UJ	4.6 R	4.2 UJ	5.4 R	4.5 J	NA	14 J	10 J	2,100	5.5 UJ	24 J
Toluene		5,500	820,000	500,000	5.8 UJ	4.6 R	4.2 UJ	5.4 R	5.9 UJ	NA	5.4 R	5.3 U	10 J	5.5 UJ	4.7 UJ
Semivolatile Organic Compounds (µg/kg)															
Benzo(g,h,i)perylene	-	360,000	1,700,000	170,000	190 U	180 UJ	190 UJ	95 J	180 U	180 U	170 U	180 U	210 U	190 U	180 U
bis(2-Ethylhexyl)phthalate	-	7,200	120,000	35,000	180 J	180 U	190 UJ	190 U	180 U	180 U	110 J	88 J	210 U	190 U	180 U
Butylbenzylphthalate		150,000	910,000	260,000	190 J	180 U	190 UJ	190 U	180 U	180 U	170 U	180 U	210 U	190 U	180 U
Dibenz(a,h)anthracene		190	210	15	39 U	36 U	38 UJ	<u>64</u> J	37 U	36 U	35 U	36 U	42 U	37 U	36 U
Di-n-butylphthalate		19,000	6,200,000	610,000	190 U	180 U	190 UJ	190 U	180 U	180 U	170 U	180 U	210 U	120 J	150 J
Indeno(1,2,3-cd)pyrene		2,000	2,100	150	39 U	36 U	38 UJ	52 J	37 U	36 U	35 U	36 U	42 U	37 U	36 U
Pesticide/Polychlorinated Biphenyls (μg/kg)															
4,4'-DDD		240	7,200	2,000	7.5 J	1.8 U	1.9 U	1.9 U	1.9 U	1.8 U	1.7 U	1.8 U	2.1 U	2.7	3.7
4,4'-DDE			5,100	1,400	25 J	1.8 U	0.75 J	0.88 J	1.9 U	1.8 U	0.56 J	1.1 J	2.1 J	21 J	22 J
4,4'-DDT		340	7,000	1,700	16 J	1.8 UJ	1 J	1.3 J	1.9 UJ	1.8 UJ	0.39 J	0.62 J	0.99 J	1.8 UJ	24 J
alpha-Chlordane		68	6,500	1,600	7.4 J	1.8 U	1.9 U	1.9 U	1.9 U	1.8 U	1.7 U	1.8 U	2.1 U	1.1 J	1 J
Aroclor-1254			740	110	<u>360</u> <u>J</u>	18 U	19 U	19 U	18 U	18 U	17 U	18 U	21 U	17 U	17 U
Dieldrin		0.81	110	30	1.9 U	1.8 U	1.9 U	1.9 U	1.9 U	1.8 U	1.7 U	1.8 U	2.1 U	1.7 J	0.91 J
gamma-Chlordane		68	6,500	1,600	8.6 J	1.8 U	1.9 U	1.9 U	1.9 U	1.8 U	1.7 U	1.8 U	2.1 U	0.58 J	0.71 J
Total Metals (mg/kg)															
Aluminum	5,487		99,000	7,700	4,280	5,720	<u>12,500</u>	<u>11,400</u>	3,910 J+	1,150 J+	1,250 J+	1,380 J+	4,640 J+	7,490	6,340
Antimony	0.447		41	3.1	0.64 J-	1.5 UJ	1.6 UJ	1.6 UJ	1.6 U	1.6 U	0.27 J	0.27 J	0.34 J	1.5 UJ	1.5 UJ
Arsenic	0.626	5.8	1.6	0.39	<u>1.7</u>	<u>0.76</u> <u>J</u>	<u>4.1</u>	<u>4.7</u>	<u>1</u> <u>J</u>	0.24 J	0.39 J	<u>0.49</u> <u>J</u>	<u>2.1</u>	<u>4.1</u>	<u>2.7</u>
Barium	14.5	580	19,000	1,500	34.3	9.2	15.7	14.8	6.5	4.6	2.9 J	4.3	17.5	12.6	13.6
Beryllium	0.103		200	16	0.055 J	0.039 J	0.14 J	0.14 J	0.16 U	0.16 U	0.15 U	0.16 U	0.18 U	0.076 J	0.1 J
Cadmium	0.033	3	80	7	0.61	0.45 U	0.49 U	0.49 U	0.015 J	0.47 U	0.014 J	0.054 J	0.11 J	0.044 J	0.45 U
Calcium	6,360				36,500	1,680	12,600	29,900	94.3	157	182	366	2,230	742	555
Chromium	6.05	3.8	5.6	0.29	<u>7.2</u>	<u>5.7</u>	<u>17.1</u>	<u>17.2</u>	<u>4</u>	<u>1.7</u>	1.4 J	<u>1.9</u>	<u>6.2</u>	<u>10.2</u>	<u>8.4</u>
Cobalt Copper	0.294 4.83	700	30 4,100	2.3 310	0.57 42.1	0.24 J 1.1 J	0.57 2.9	0.56 3.2	0.086 J 0.73 J	0.069 J 0.54 J	0.38 U 1.4 J	0.067 J 1.9	0.45 U 13.1	0.42 4.1	0.3 J 7.9
Iron	3,245	150	72,000	5,500	5,010	1,620	9,030	10,200	2,410	559	903	930	3,430	6,430	5,270
Lead	12.3	270	800	400	70.3	3.7	9,030	12.1	3.9	3	9.1	12.2	3,430	<u>6,430</u> 11	19.4
Magnesium	238		800	400	312	197	614	796	103	46.7	53.7	60.4	38.6 247	339	263
Manganese	13.7	65	2,300	180	22.2	5.5	9.7	14	4.6	5.2	6.2	7.6	14.3	7.9	12.5
Mercury	0.081	1	31	2.4	0.51	0.034 U	0.035 U	0.041	0.034 U	0.034 U	0.033 U	0.019 J	0.039 U	0.044	0.049
Nickel	1.21	130	2,000	160	2.7	1.3	1.8	2.1	0.55 J	0.48 J	0.49 J	0.53 J	1.6	1.7	1.6
Potassium	116				184	287	497	475	109	78.8 U	76.3 U	78.8 U	220	367	249
Selenium	0.563	2.1	510	39	0.49 J	1.5 U	1.6 U	1.6 U	1.6 U	1.6 U	1.5 U	1.6 U	1.8 U	1.5 U	1.5 U
Silver	0.14	3.4	510	39	1.6 U	1.5 U	1.6 U	1.6 U	1.6 U	0.17 J	1.5 U	1.6 U	1.8 U	1.5 U	1.5 U
Sodium	80.9				17.5 J	6.7 J	40.9 J	68.7 J	202 U	197 U	191 U	197 U	17.1 J	13.8 J	188 U
Vanadium	8.9		520	39	7.5	7.2	20.1	22.3	5.5	2.2 J	2.3 J	2.7 J	8.9	18	13.2
Zinc	10.8	1,200	31,000	2,400	170	3.8 U	10	11.9	4 U	3.9 U	6	7.5	26.2	12.5	18
Wet Chemistry															
pH					7.8	8.3	7.9	8	4.7	4.8	4.8	5.6	5.6	5.2	5.5
<u>II</u>			1			0.0		<u> </u>				0.0	0.0		0.0

Notes:
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Bold box indicates exceedance of NC SSLs
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J - Analyte present, value may be biased low, actual value may be higher
J+ - Analyte present, value may be biased high, actual value may be lower
R - Unreliable Result
U - The material was analyzed for, but not detected
UJ - Analyte not detected, quantitation limit may be inaccurate
mg/kg - milligrams per kilogram
µg/kg - micrograms per kilogram

Site 15 Subsurface Soil Analytical Results Camp Johnson Construction Area Focused PA/SI Report

MCB CamLej, North Carolina

	Camp Lejeune Background SB 2X	NCSSLs	Adjusted	Adjusted	IR15-SB01	11110	5-SB02	IR15-SB03	IR15-SB04	IR15-SB05	IR15-SB06	IR15-SB07	IR15-SB08	IR15-SB09	IR15-SB10
	Dackground 3D ZA 1		Industrial Soil	Residential Soil	IR15-SB01-4-6-09C	IR15-SB02-2-7-09C	IR15-SB02D-2-7-09C	IR15-SB03-2-7-09C	IR15-SB04-2-7-09C	IR15-SB05-2-7-09C	IR15-SB06-2-7-09C	IR15-SB07-2-4-09C	IR15-SB08-2-4-09C	IR15-SB09-2-7-09C	IR15-SB10-2-4-09C
Sample Date	Mean	(January, 2010)	RSLs	RSLs	07/29/09	07/26/09	07/26/09	07/29/09	07/27/09	07/27/09	07/27/09	07/27/09	07/29/09	07/29/09	07/29/09
Chemical Name															
Volatile Organic Compounds (μg/kg)															
1,2,4-Trichlorobenzene		2,200	28,000	6,200	1.7 U	2 UJ	2.4 UJ	1.8 U	2.4 J	1.8 UJ	3.2 R	2.5 J	1.9 J	2.4 J	1.6 U
1,3-Dichlorobenzene		7,600			1.7 U	2 UJ	2.4 UJ	1.8 U	1.4 J	1.8 UJ	3.2 R	1.6 J	1.6 U	1.3 J	1.6 U
1,4-Dichlorobenzene		70	12,000	2,400	1.7 U	2 UJ	2.4 UJ	1.8 U	1.9 UJ	1.8 UJ	1.6 R	1.6 J	1.6 U	1.4 J	1.6 U
2-Butanone		16,000	20,000,000	2,800,000	3.4 U	4 UJ	4.8 UJ	3.6 U	6.6 J	3.7 UJ	3.2 R	21 J	3.1 U	15 J	3.2 U
2-Hexanone 4-Methyl-2-pentanone		1,200	140,000 3,400,000	21,000	3.4 U 3.4 U	4 UJ 4 UJ	4.8 UJ 4.8 UJ	3.6 U 3.6 U	3.9 UJ 3.9 UJ	3.7 UJ 3.7 UJ	3.2 R 3.2 R	4.1 J 4.2 UJ	3.1 U 3.1 U	0.6 J 1.7 J	3.2 U 3.2 U
' '		24,000	63,000,000	530,000 6,100,000	3.4 U	4 UJ 42 J	4.8 UJ 39 J	3.6 U 6.4 J	3.9 UJ 41 J	3.7 UJ 19 J	3.2 R 60 J	4.2 UJ 120 J	3.1 U 18 J	1.7 J 180 J	3.2 U 4.6
Acetone Benzene		7.3	5.400	1.100	3.4 U 1.7 U	42 J 2 UJ	2.4 UJ	1.8 U	0.97 J	19 J	1.6 R	2.1 UJ	1.6 U	0.42 J	4.6 1.6 U
Carbon disulfide		3,800	370,000	82,000	1.7 U	2 UJ	2.4 UJ 1.4 J	1.8 U	0.97 J 1.9 UJ	1.8 UJ	1.6 R	2.1 UJ	1.6 U	0.42 J	1.6 U
Chlorobenzene		450	140,000	29,000	1.7 U	2 UJ	2.4 UJ	1.8 U	1.9 UJ	1.8 UJ	1.6 R	2.1 UJ	1.6 U	2.6 J	1.6 U
Methyl acetate			29,000,000	7,800,000	1.7 U	1.9 J	3.5 J	1.8 U	1.9 UJ	7.8 J	1.6 R	2.1 UJ	1.6 U	1.9 R	1.6 U
Methylene chloride		23	53,000	11,000	3.4 UJ	2.2 J	3.1 J	3.6 UJ	2.9 J	8.9 J	3.2 R	3.3 J	3.1 U	3.9 R	3.2 UJ
Styrene		920	870,000	630,000	1.7 U	2 UJ	2.4 UJ	1.8 U	3.9 UJ	1.8 UJ	3.2 R	2.9 J	3.1 U	2.6 J	1.6 U
Tetrachloroethene		5	2,600	550	1.7 U	2 UJ	2.4 UJ	1.8 U	1.9 UJ	1.8 UJ	1.6 R	2.1 UJ	1.6 U	1.5 J	1.6 U
Toluene		5,500	820,000	500,000	1.7 U	2 UJ	2.4 UJ	1.8 U	2.8 J	1.8 UJ	1.6 R	2.9 J	1.6 U	0.42 J	1.6 U
		-,	,	,		_ 50									
Semivolatile Organic Compounds (µg/kg)															
bis(2-Ethylhexyl)phthalate		7,200	120,000	35,000	37 J	320 U	330 U	31 J	360 U	330 U	180 U	210 U	190 U	200 U	32 J
Pesticide/Polychlorinated Biphenyls (µg/kg)															
4,4'-DDD		240	7,200	2,000	1.9 U	0.61 J	1.9 U	1.9 U	2.1 U	1.9 U	1.8 U	0.58 J	0.61 J	13	46
4,4'-DDE		240	5,100	1,400	1.9 U	9.7 J	0.54 J	1.9 U	2.1 U 1.6 J	0.56 J	1.8 U	0.58 J 0.68 J	0.61 J 0.92 J	6.8	95
4,4'-DDT		340	7,000	1,700	1.9 U	3.9 J	1.9 UJ	1.9 U	0.92 J	0.56 J	1.8 U	2.1 U	1.9 U	25	180
alpha-Chlordane		68	6,500	1,600	1.9 U	1.9 U	1.9 U	1.9 U	2.1 U	1.9 U	1.8 U	2.1 U	1.9 U	3.7 J	9.9 J
Dieldrin		0.81	110	30	1.9 U	1.9 U	1.9 U	1.9 U	2.1 U	2.3	1.8 U	2.1 U	1.9 U	2 U	1.8 U
gamma-Chlordane		68	6,500	1,600	1.9 U	1.9 U	1.9 U	1.9 U	2.1 U	1.9 U	1.8 U	2.1 U	1.9 U	3.2	7.4
gamma omoraano		00	0,000	1,000	0	0	1.0 0	1.0 0	2 0	1.0 0	1.0 0	2 0	0	0.2	
Total Metals (mg/kg)															
Aluminum	10,369		99,000	7,700	3,380	6,070 J	5,570 J	3,310	4,940	4,190 J	1,590	2,650	455	5,090	3,550
Antimony	0.36		41	3.1	0.82 J-	1.6 UJ	1.6 UJ	1.6 UJ	1.8 UJ	1.6 UJ	1.5 UJ	1.7 UJ	1.6 UJ	8.6 UJ	0.21 J-
Arsenic	2.12	5.8	1.6	0.39	<u>1.8</u>	<u>1.6</u>	<u>1.4</u> J	<u>1.2</u> <u>J</u>	<u>1.9</u>	<u>1.8</u>	0.38 J	<u>0.63</u> <u>J</u>	1.6 U	<u>16.6</u>	<u>1.4</u> <u>J</u>
Barium	16.6	580	19,000	1,500	32.3	13.6	12	5.4	14.8 J	6.8	3.6 J	8.8 J	4.1 U	21.5 U	8.5
Beryllium	0.165		200	16	0.042 J	0.16 U	0.16 U	0.04 J	0.18 U	0.16 U	0.15 U	0.17 U	0.16 U	0.071 J	0.056 J
Cadmium	0.023	3	80	7	0.53	0.47 U	0.47 U	0.47 U	0.54 U	0.49 U	0.46 U	0.52 U	0.49 U	0.82 J	0.019 J
Calcium	441 14.5	3.8		0.29	20,000	518	470	156 <u>4.7 J</u>	670	425	76.9 U	283 3.1	82.1 U	2,630	137
Chromium			5.6		6.9 J	<u>6.3</u>	<u>5.5</u>		7.4	<u>6.1</u>	6.3		1.1 J	<u>52.4</u> <u>J</u>	<u>5.7 J</u>
Cobalt Copper	0.822 2.56	700	30 4,100	2.3 310	0.73 27.5	0.32 J 5.9	0.22 J 4.6	0.16 J 0.71 J	0.39 J 31.7	0.22 J 1.6 U	0.066 J 0.89 J	0.099 J 2.1	0.41 U 0.27 J	<u>9.3</u> 10.6	0.14 J 2.6
Iron	5,439	150	72,000	5,500	<u>5,830</u>	4,050	2,640	2,540	3,470	2,260	718	1,290	153 J+	179,000 J+	3,020
Lead	8.49	270	800	400	483	28.4	21.6	2,540	53	4.6	2.7	5.7	1.3 J	111	5.8
Magnesium	363				219	174	178	130	206	180	58	89.6	17.2 J	200	105
Manganese	9.25	65	2,300	180	69.6	9.2	9.2	6.8	21.9 J+	5.9	5.6 J+	8 J+	1.5	626	6.9
Mercury	0.071	1	31	2.4	0.14	0.036	0.013 J	0.033 U	0.036 J	0.035 U	0.0027 J	0.032 J	0.033 U	0.037 U	0.045
Nickel	2.27	130	2,000	160	3.9	1.7	1.5	0.79 U	1.5 J	0.033 0	0.74 J	0.032 J	0.82 U	24.4	0.043
Potassium	361		2,000		143	121	137	144	199	166	54.4 J	64.3 J	18.2 J	236 J	102
Sodium	68.3				202 U	8.8 J	7.7 J	5.6 J	15 J	7.2 J	4.3 J	8.2 J	205 U	1,080 U	194 U
Thallium	0.38		6.6	0.51	2.4 U	2.3 U	2.4 U	2.4 U	2.7 U	2.5 U	2.3 U	2.6 U	2.5 U	1.9 J	2.3 U
Vanadium	17.2		520	39	7	10.4 J+	7.3 J+	6	8.9 J	8.8 J+	2.3 J	3.4 J	4.1 U	21.5 U	7.1
Zinc	6.59	1,200	31,000	2,400	345	19.5	17.1	3.9 U	34.3	4.1 U	1.5 J	4.1 J	4.1 U	99	8 U
		.,=	,	_,									2		
Wet Chemistry															
pH (ph)					7.5	6.9	7.3	5.1	7.4	5.9	5.4	6	6.8	7.5	5

Notes:
Shading indicates exceedance of two times the mean base background concentration
Bold box indicates exceedance of NCSSLs
Bold text indicates exceedance of Adjusted Industrial Soil RSLs

Underline indicates exceedance of Adjusted Residential Soil RSLs

RSLs were adjusted for noncarcinogens to account for exposure to multiple constituents

NA - not analyzed

J - Analyte present, value may or may not be accurate or precise
J- - Analyte present, value may be biased low, actual value may be higher

J+ - Analyte present, value may be biased high, actual value may be lower

R - Unreliable Result

U - The material was analyzed for, but not detected

UJ - Analyte not detected, quantitation limit may be inaccurate

mg/kg - milligrams per kilogram

ph - pH units μg/kg - micrograms per kilogram

Created by: B. Propst/CLT Checked by: K. Howell/CLT

TABLE 5-6

IR Site 15 Groundwater Analytical Results Camp Johnson Construction Area Focused PA/SI Report

Carolina

Station ID	Camp Lejeune			IR15-TW01	IR15-TW02	IR15	i-TW03	IR15-TW04	IR15-TW05
Sample ID	Background GW 2X	NCGWQS (January,	Adjusted Tap Water	IR15-TW01-09C	IR15-TW02-09C	IR15-TW03-09C	IR15-TW03D-09C	IR15-TW04-09C	IR15-TW05-09C
Sample Date	Mean	2010)	RSLs	07/29/09	07/29/09	07/28/09	07/28/09	07/29/09	07/28/09
Chemical Name									
Offerfical Name									
Volatile Organic Compounds (µg/l)									
Isopropylbenzene		70	68	1 U	1 U	1 UJ	4.9 J	1 U	1 R
Styrene		70	160	1 U	1 U	1 UJ	5.9 J	1 U	1 R
Semivolatile Organic Compounds (µg/l)									
No Detections				NA	NA	NA	NA	NA	NA
Pesticide/Polychlorinated Biphenyls (μg/l)				NA	NA				
No Detections				NA	NA NA	NA	NA	NA	NA
Total Metals (μg/l)									
Aluminum	1.886		3,700	45.8 J	148 J	612 J	1,000 U	307 J	3,360
Arsenic	5.77	10	0.045	20 U	20 U	20 U	20 U	3.2 J	20 U
Barium	86.2	700	730	28 J	24.3 J	92.1	95	24.1 J	19.2 J
Beryllium	0.308	4	7.3	2 U	2 U	0.17 J	0.18 J	2 U	2 U
Calcium	69,078			27,500	4,110	3,580	3,540	45,500	42,500
Chromium	3.13	10	0.043	20 U	20 U	20 U	1.7 J	20 U	5 J
Cobalt	3.4	-	1.1	3.9 J	0.63 J	1 J	2.6 J	0.66 J	5 U
Copper	2.76	1,000	150	20 U	2.8 J	20 U	2.9 J	20 U	3.8 J
Iron	5,999	300	2,600	25,800	2,910	6,450	6,440	10,600	1,040
Magnesium	6,363			1,410	393	4,520	4,620	2,940	1,040
Manganese	214	50	88	439	49.6	87	89.6	149	5.2
Nickel	7.97	100	73	30	21.2	10.1	12.1	10 U	2.3 J
Potassium	3,277			1,330	2,540	1,480	1,550	808 J	624 J
Sodium	22,508			1,590 J	5,120	7,670	8,000	2,910	4,510
Thallium	3.78	2	0.24	30 U	30 U	30 U	30 U	3.2 J	30 U
Zinc	42.1	1,000	1,100	5.3 J	5.5 J	10.9 J	7.8 J	9,2 J	7.1 J
								5.2 0	
Dissolved Metals (µg/l)								5.2 0	
A lease income	4.000		2.700	4.000 11	40.1	546	620.1		
Aluminum	1,886		3,700	1,000 U	40 J	516 J	629 J	1,000 U	1,000 U
Barium	86.2	700	730	25.6 J	21.8 J	94	96.8	1,000 U 23.2 J	1,000 U 20 U
Barium Beryllium	86.2 0.308	700 4	730 7.3	25.6 J 2 U	21.8 J 0.089 J	94 0.21 J	96.8 0.2 J	1,000 U 23.2 J 2 U	1,000 U 20 U 2 U
Barium Beryllium Calcium	86.2 0.308 69,078	700 4 	730 7.3 	25.6 J 2 U 25,000	21.8 J 0.089 J 3,980	94 0.21 J 3,550	96.8 0.2 J 3,710	1,000 U 23.2 J 2 U 44,100	1,000 U 20 U 2 U 42,900
Barium Beryllium Calcium Cobalt	86.2 0.308 69,078 3.4	700 4 	730 7.3 1.1	25.6 J 2 U 25,000 3.1 J	21.8 J 0.089 J 3,980 0.54 J	94 0.21 J 3,550 1.1 J	96.8 0.2 J 3,710 1.1 J	1,000 U 23.2 J 2 U 44,100 0.66 J	1,000 U 20 U 2 U 42,900 5 U
Barium Beryilium Calcium Cobalt Copper	86.2 0.308 69,078 3.4 2.76	700 4 1,000	730 7.3 1.1 150	25.6 J 2 U 25,000 3.1 J 2.7 J	21.8 J 0.089 J 3,980 0.54 J 4.6 J	94 0.21 J 3,550 1.1 J 2.7 J	96.8 0.2 J 3,710 1.1 J 20 U	1,000 U 23.2 J 2 U 44,100 0.66 J 20 U	1,000 U 20 U 2 U 42,900 5 U 20 U
Barium Beryilium Calcium Cobalt Copper Iiron	86.2 0.308 69,078 3.4 2.76 5,999	700 4 	730 7.3 1.1	25.6 J 2 U 25,000 3.1 J 2.7 J 20,500	21.8 J 0.089 J 3,980 0.54 J 4.6 J 2,570	94 0.21 J 3,550 1.1 J 2.7 J 6,620	96.8 0.2 J 3,710 1.1 J 20 U 6,720	1,000 U 23.2 J 2 U 44,100 0.66 J 20 U 7,240	1,000 U 20 U 2 U 42,900 5 U 20 U
Barium Beryllium Calcium Cobalt Copper Iron Magnesium	86.2 0.308 69,078 3.4 2.76 5,999 6,363	700 4 1,000 300	730 7.3 1.1 150 2,600	25.6 J 2 U 25,000 3.1 J 2.7 J 20,500 1,350	21.8 J 0.089 J 3,980 0.54 J 4.6 J 2,570	94 0.21 J 3,550 1.1 J 2.7 J 6,620 4,580	96.8 0.2 J 3,710 1.1 J 20 U 6,720 4,740	1,000 U 23.2 J 2 U 44,100 0.66 J 20 U 7,240 2,840	1,000 U 20 U 2 U 42,900 5 U 20 U 102 J 912
Barium Beryllium Calcium Cobalt Copper Iron Magnesium Manganese	86.2 0.308 69,078 3.4 2.76 5,999 6,363 214	700 4 1,000 300 50	730 7.3 1.1 150 2,600 88	25.6 J 2 U 25,000 3.1 J 2.7 J 20,500 1,350 236	21.8 J 0.089 J 3,980 0.54 J 4.6 J 2,570 370 45.7	94 0.21 J 3,550 1.1 J 2.7 J 6,620 4,580 90.2	96.8 0.2 J 3,710 1.1 J 20 U 6,720 4,740 88.8	1,000 U 23.2 J 2 U 44,100 0.66 J 20 U 7,240 2,840	1,000 U 20 U 2 U 42,900 5 U 20 U 102 J 912 2.8 J
Barium Berylium Calcium Cobalt Copper Iiron Magnesium Manganese Nickel	86.2 0.308 69.078 3.4 2.76 5.999 6,363 214 7.97	700 4 1,000 300	730 7.3 1.1 150 2,600	25.6 J 2 U 25,000 3.1 J 2.7 J 20,500 1,350 236	21.8 J 0.089 J 3,980 0.54 J 4.6 J 2,570 370 45.7	94 0.21 J 3,550 1.1 J 2.7 J 6,620 4,580 90.2	96.8 0.2 J 3,710 1.1 J 20 U 6,720 4,740 88.8 10.4	1,000 U 23.2 J 2 U 44,100 0.66 J 20 U 7,240 2,840 165	1,000 U 20 U 2 U 42,900 5 U 20 U 102 J 912 2.8 J 10 U
Barium Beryllium Calcium Cobalt Copper Iron Magnesium Manganese	86.2 0.308 69,078 3.4 2.76 5,999 6,363 214	700 4 	730 7.3 1.1 150 2,600 88 73	25.6 J 2 U 25,000 3.1 J 2.7 J 20,500 1,350 236 25 1,110	21.8 J 0.089 J 3,980 0.54 J 4.6 J 2,570 370 45.7 23 2,460	94 0.21 J 3,550 1.1 J 2.7 J 6,620 4,580 90.2 10.2	96.8 0.2 J 3,710 1.1 J 20 U 6,720 4,740 88.8	1,000 U 23.2 J 2 U 44,100 0.66 J 20 U 7,240 2,840	1,000 U 20 U 2 U 42,900 5 U 20 U 102 J 912 2.8 J
Barium Beryllium Calcium Cobalt Copper Iron Magnesium Manganese Nickel Potassium	86.2 0.308 69,078 3.4 2.76 5.999 6,363 214 7.97 3,277	700 4 1,000 300 50	730 7.3 1.1 150 2,600 88 73	25.6 J 2 U 25,000 3.1 J 2.7 J 20,500 1,350 236	21.8 J 0.089 J 3,980 0.54 J 4.6 J 2,570 370 45.7	94 0.21 J 3,550 1.1 J 2.7 J 6,620 4,580 90.2	96.8 0.2 J 3,710 1.1 J 20 U 6,720 4,740 88.8 10.4 1,600	1,000 U 23.2 J 2 U 44,100 0.66 J 20 U 7,240 2,840 165	1,000 U 20 U 2 U 42,900 5 U 20 U 102 J 912 2.8 J 10 U 472 J
Barium Beryllium Calcium Cobalt Copper Iron Magnesium Manganese Nickel Potassium Sodium Zinc	86.2 0.308 69,078 3.4 2.76 5,999 6.363 214 7.97 3,277 22,508	700 4 1,000 300 50 100	730 7.3 1.1 150 2,600 88 73	25.6 J 2 U 25,000 3.1 J 2.7 J 20,500 1,350 236 25 1,110 1,580 J	21.8 J 0.089 J 3,980 0.54 J 4.6 J 2,570 370 45.7 23 2,460 5,010	94 0.21 J 3,550 1.1 J 2.7 J 6,620 4,580 90.2 10.2 1,560 7,910	96.8 0.2 J 3,710 1.1 J 20 U 6,720 4,740 88.8 10.4 1,600 8,120	1,000 U 23.2 J 2 U 44,100 0.66 J 20 U 7,240 2,840 165 10 U 780 J 2,900	1,000 U 20 U 2 U 42,900 5 U 20 U 102 J 912 2.8 J 10 U 472 J 4,290
Barium Beryllium Calcium Cobalt Copper Iron Magnesium Manganese Nickel Potassium Sodium	86.2 0.308 69,078 3.4 2.76 5,999 6.363 214 7.97 3,277 22,508	700 4 1,000 300 50 100	730 7.3 1.1 150 2,600 88 73	25.6 J 2 U 25,000 3.1 J 2.7 J 20,500 1,350 236 25 1,110 1,580 J	21.8 J 0.089 J 3,980 0.54 J 4.6 J 2,570 370 45.7 23 2,460 5,010	94 0.21 J 3,550 1.1 J 2.7 J 6,620 4,580 90.2 10.2 1,560 7,910	96.8 0.2 J 3,710 1.1 J 20 U 6,720 4,740 88.8 10.4 1,600 8,120	1,000 U 23.2 J 2 U 44,100 0.66 J 20 U 7,240 2,840 165 10 U 780 J 2,900	1,000 U 20 U 2 U 42,900 5 U 20 U 102 J 912 2.8 J 10 U 472 J 4,290

Notes: Shading indicates exceedance of two times the mean base background concentration

Bold box indicates exceedance of NCGWQS

Bold text indicates exceedance of Adjusted Tap Water RSLs

RSLs were adjusted for noncarcinogens to account for exposure to multiple constituents

NA - not analyzed

J - Analyte present, value may or may not be accurate or precise

R - Unreliable Result

U - The material was analyzed for, but not detected

UJ - Analyte not detected, quantitation limit may be inaccurate

μg/l - micrograms per liter

TABLE 5-7

IR Site 17 Surface Soil Analytical Results Camp Johnson Construction Area Focused PA/SI Reprt MCB CamLej, North Carolina

Station ID	Camp Lejeune		Adjusted	Adjusted	IR1	7-SS01	IR17-SS02	IR17-SS03	IR17-SS04	IR17-SS05
Sample ID	Background SS 2X	NCSSLs (January, 2010)	Industrial Soil	Residential	IR17-SS01-00-01-09C	IR17-SS01D-00-01-09C	IR17-SS02-00-01-09C	IR17-SS03-00-01-09C	IR17-SS04-00-01-09C	IR17-SS05-00-01-09C
Sample Date	Mean	2010)	RSLs	Soil RSLs	07/10/09	07/10/09	07/10/09	07/10/09	07/10/09	07/10/09
Chemical Name							2171272	***************************************	31,110,00	
Chemical Name										
Volatile Organic Compounds (μg/kg										
2-Butanone		16,000	20,000,000	2,800,000	14 J	4.9 J	5.1 J	11 UJ	23 J	2.8 J
Acetone		24,000	63,000,000	6,100,000	680 J	200 J	70 J	11 UJ	900 J	72 J
Chloroform		340	1,500	300	6.5 UJ	3 UJ	13 J	5.4 UJ	5.2 R	4.8 UJ
Chloromethane		15	50,000	12,000	6.5 J	2.8 J	9.2 UJ	11 UJ	10 R	9.7 UJ
Methyl acetate			29,000,000	7,800,000	6.5 UJ	3 UJ	4.3 J	3.6 J	70 J	7 J
Semivolatile Organic Compounds (µg/kg										
bis(2-Ethylhexyl)phthalate		7.200	120.000	35.000	96 J	240 U	180 U	180 U	180 U	180 U
Di-n-butylphthalate		19,000	6,200,000	610,000	93 J	240 U	180 U	180 U	180 U	180 U
Pesticide/Polychlorinated Biphenyls (µg/kg										
4,4'-DDE			5,100	1,400	0.63 J	0.6 J	1.1 J	1.8 UJ	0.83 J	2.2 J
4,4'-DDT		340	7.000	1,700	2.5 UJ	2.4 UJ	1.1 J	1.8 UJ	0.63 J	0.9 J
4,4 001		540	7,000	1,700	2.5 00	2.4 00	1.5 0	1.0 00	10	0.5 0
Total Metals (mg/kg)										
Aluminum	5,487		99,000	7,700	7,580 J+	7,110 J+	7,320	5,150	5,810	5,520
Arsenic	0.626	5.8	1.6	0.39	4.9	3.3	<u>1.3</u> <u>J</u>	<u>1.9</u>	<u>1.8</u>	<u>1.1 J</u>
Barium	14.5	580	19,000	1,500	16.1	19.2	21.3	12.7	14.8	14.9
Beryllium	0.103		200	16	0.21 U	0.2 U	0.16	0.15 U	0.14 J	0.14 J
Cadmium	0.033	3	80	7	0.64 U	0.61 U	0.02 J	0.45 U	0.44 U	0.46 U
Calcium	6,360	-			356	372	91.5	210	92.5	181
Chromium	6.05	3.8	5.6	0.29	<u>8.3</u>	<u>7.5</u>	3.8	3.7	3.3	2.7
Cobalt	0.294		30	2.3	0.54 U	0.51 U	0.29 J	0.21 J	0.33 J	0.31 J
Copper	4.83	700	4,100	310	1 J	0.95 J	0.92 J	0.7 J	0.81 J	0.93 J
Iron	3,245	150	72,000	5,500	<u>7,640</u>	5,230	2,190	1,800	1,670	1,880
Lead	12.3	270	800	400	17.1	13.9	7.5	9.3	8.7	9.3
Magnesium	238				667	646	221	178	186	132
Manganese	13.7	65	2,300	180	9.1	8.2	9.3	8.7 0.042	10.8	5.9
Mercury Nickel	0.081 1.21	130	31 2,000	2.4 160	0.052 1.5	0.045 U 1.2	0.033 U 2	0.042	0.033 U 1.5	0.033 U 1.4
Potassium	1.21	130	2,000	160	495	461	134	1.4	1.5	1.4
Selenium	0.563	2.1	510	39	0.69 J	0.57 J	1.5 U	1.5 U	1.5 U	1.5 U
Silver	0.563	3.4	510	39	0.69 J 0.4 J	0.57 J 0.16 J	1.5 U	1.5 U	1.5 U	1.5 U
Sodium	80.9	3.4	510		1.840	1,870	30.8 J	1.5 U	13.5 J	13.1 J
Vanadium	8.9		520	39	20.8	15.9	6.8	6.2	6.2	5.8
Zinc	10.8	1,200	31.000	2.400	5.4 U	5.1 U	5.2	4.3	4.3	5.2
Zino	10.0	1,200	31,000	2,700	3.4 0	3.1 0	3.2	4.5	4.5	5.2
Wet Chemistry										
pH		-			4.2	4.2	4.7	4.6	4.9	4.3
<u> </u>	L	•				·		***		

Notes:
Shading indicates exceedance of two times the mean base background concentration
Bold box indicates exceedance of NCSSLs
Bold text indicates exceedance of Adjusted Industrial Soil RSLs

Underline indicates exceedance of Adjusted Residential Soil RSLs

RSLs were adjusted for noncarcinogens to account for exposure to multiple constituents

J - Analyte present, value may or may not be accurate or precise

J+ - Analyte present, value may be biased high, actual value may be lower

R - Unreliable Result

U - The material was analyzed for, but not detected

UJ - Analyte not detected, quantitation limit may be inaccurate

mg/kg - milligrams per kilogram

μg/kg - micrograms per kilogram

IR Site 17 Subsurface Soil Analytical Results Camp Johnson Construction Area Focused PA/SI Report MCB CamLej, North Carolina

Station ID	Camp Lejeune		Adjusted	Adjusted	IR17-SB01	IR17-SB02	I	R17-SB03	IR17-SB04	IR17-SB05
Sample ID	Background SB 2X	NCSSLs	Industrial Soil	Residential	IR17-SB01-2-4-09C	IR17-SB02-2-7-09C	IR17-SB03-2-7-09C	IR17-SB03D-2-7-09C	IR17-SB04-2-7-09C	IR17-SB05-2-7-09C
Sample Date	Mean	(January, 2010)	RSLs	Soil RSLs	07/27/09	07/28/09	07/28/09	07/28/09	07/28/09	07/28/09
Chemical Name										
Official data in the second of										
Volatile Organic Compounds (µg/kg)										
1.2.4-Trichlorobenzene	-	2,200	28,000	6.200	1.1 J	1.4 U	2 UJ	1.8 R	1.7 UJ	1.8 UJ
1,2-Dibromo-3-chloropropane		0.25	69	5.4	1.6 J	1.4 U	2 UJ	1.8 R	1.7 UJ	1.8 UJ
2-Butanone	-	16,000	20,000,000	2,800,000	1.4 J	2.9 U	2.6 J	1.3 J	3.3 UJ	3.5 UJ
Acetone	-	24,000	63,000,000	6,100,000	70 J	2.9 U	99 J	41 J	3.3 UJ	3.5 UJ
Chloroform	-	340	1,500	300	4.9 J	2.3	2 UJ	1.8 UJ	1.7 UJ	1.8 UJ
Methyl acetate	-		29,000,000	7,800,000	1.3 J	1.4 U	96 J	13 J	5.1 J	1.3 J
Methylene chloride	-	23	53,000	11,000	2.2 UJ	1.4 U	1.5 J	1.8 UJ	3.3 UJ	1.8 UJ
								<u> </u>		
Semivolatile Organic Compounds (µg/kg)										
No Detections					NA	NA	NA	NA	NA	NA
B (1:11/B) 11 1 1 1 1 1 1 1 1										
Pesticide/Polychlorinated Biphenyls (μg/kg) 4,4'-DDE			5.100	1.400	1.7 U	1.7 U	1.7 U	1.7 U	4711	0.41 J
4,4 -DDE			5,100	1,400	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	0.41 J
Total Metals (mg/kg)										
Aluminum	10,369		99,000	7,700	17,400	4,520	20,000	17,700	5,270	7,900
Antimony	0.36		41	3.1	0.93 J	1.7 U	1.8 U	1.8 U	1.6 U	1.6 U
Arsenic	2.12	5.8	1.6	0.39	7.2	1.3 J	13	14.6	0.95 J	2.5
Barium	16.6	580	19.000	1,500	18.9	9.7	21.8	20	6.6	19.5
Beryllium	0.165		200	16	0.21	0.057 J	0.31	0.28	0.055 J	0.15 J
Calcium	441	-	-		90 U	84.6 U	89.1 U	92 U	227	97.3
Chromium	14.5	3.8	5.6	0.29	<u>27.4</u>	4.7	<u>35.8</u>	<u>34.1</u>	5.6	7.4
Cobalt	0.822		30	2.3	0.59	0.28 J	1.1	1	0.26 J	0.65
Copper	2.56	700	4,100	310	3.5	0.66 J	5	4.2	0.86 J	1.5 J
Iron	5,439	150	72,000	5,500	16,400	2,240	19,600	28,400	2,500	6,230
Lead	8.49	270	800	400	10.7	5.2	15.4	15.9	3.3	6.7
Magnesium	363				791	179	1,020	836	184	284
Manganese	9.25	65	2,300	180	10.8	8.7	12.1	13.3	5.4	11.4
Mercury	0.071	1	31	2.4	0.039 U	0.036 U	0.04 U	0.041 U	0.033 U	0.049
Nickel	2.27	130	2,000	160	2.1	1.3	2.7	2.5	1.2	1.9
Potassium	361				943	145	1,070	833	155	225
Selenium	0.505	2.1	510	39	1.8 U	1.7 U	1.2 J	1.4 J	1.6 U	1.6 U
Sodium	68.3				230	22.6 J	106 J	81.9 J	5.3 J	21 J
Vanadium	17.2 6.59	1,200	520	39 2.400	37.6 7.5	7 3.1 J	<u>49.4</u> 8.9	<u>70.4</u> 8.9	7.4 2.4 J	13.2 6.3
Zinc	6.59	1,200	31,000	2,400	1.5	3.1 J	8.9	8.9	2.4 J	0.3
Wet Chemistry										
pH					3.8	4.6	4.4	4.3	4.7	NA
Pr	<u> </u>				5.0	1.0	7.7	4.5	7.7	10/3

Notes: Shading indicates exceedance of two times the mean base background concentration for

Bold box indicates exceedance of NCSSLs Bold text indicates exceedance of Adjusted Industrial Soil RSLs

Underline indicates exceedance of Adjusted Residential Soil RSLs

RSLs were adjusted for noncarcinogens to account for exposure to multiple constituents

NA - not analyzed

J - Analyte present, value may or may not be accurate or precise

R - Unreliable Result

U - The material was analyzed for, but not detected

UJ - Analyte not detected, quantitation limit may be inaccurate

mg/kg - milligrams per kilogram μg/kg - micrograms per kilogram

IR Site 17 Groundwater Analytical Results Camp Johnson Construction Area Focused PA/SI Report MCB CamLej, North Carolina

Station ID	Camp Lejeune	NOOMOO (I	A.P. etc. I.T Western	IR17-TW01	IR17-TW02		
Sample ID	Background GW 2X	NCGWQS (January,	Adjusted Tap Water RSLs	IR17-TW01-09C	IR17-TW02-09C	IR17-TW02D-09C	
Sample Date	Mean	2010)	KSLS	07/29/09	07/29/09	07/29/09	
Chemical Name							
Onomical Name							
Volatile Organic Compounds (µg/l)							
Chloroform		70	0.19	4.4	1 U	1 U	
Semivolatile Organic Compounds (µg/l)							
Caprolactam		4,000	1,800	4.5 J	10 U	10 U	
Pesticide/Polychlorinated Biphenyls (µg/l)							
No Detections				NA	NA	NA	
Total Matala (conti)							
Total Metals (µg/l) Aluminum	1,886		3,700	1,680	621 J	1,260	
Barium	86.2	700	730	474	621 J 8 J	1,260 9.2 J	
Beryllium	0.308	4	7.3	2 U	0.12 J	9.2 J 0.16 J	
Calcium	69,078			111,000	911 J	893 J	
Chromium	3.13	10	0.043	1.8 J	20 U	20 U	
Iron	5,999	300	2,600	2,590	814	1,170	
Lead	2.8	15		3.2 J	20 U	3.2 J	
Magnesium	6,363			57,300	466	537	
Manganese	214	50	88	57.5	16.9	17.7	
Mercury	0.1	1	1.1	0.25	0.2 U	0.2 U	
Nickel	7.97	100	73	13.8	10 U	10 U	
Potassium	3,277			8,250	1,010	1,070	
Selenium	3.14	20	18	20 U	3.9 J	4.2 J	
Sodium	22,508			499,000	7,220	7,470	
Zinc	42.1	1,000	1,100	10.2 J	5.7 J	4.9 J	
Dissolved Metals (μg/l)							
Aluminum	1,886 86.2		3,700	567 J	1,000 U	1,000 U	
Barium Beryllium	0.308	700 4	730 7.3	498 2 U	5.1 J 0.1 J	4.5 J 2 U	
Calcium	69,078		1.3	110,000	612 J	609 J	
Copper	2.76	1.000	150	3.8 J	20 U	20 U	
Iron	5,999	300	2.600	2.760	309	296	
Lead	2.8	15	2,000	2.6 J	20 U	20 U	
Magnesium	6,363			59,200	263	266	
Manganese	214	50	88	64.6	13	11	
Nickel	7.97	100	73	15.9	10 U	10 U	
Potassium	3,277			8,580	1,060	1,040	
Selenium	3.14	20	18	20 U	20 U	4.2 J	
Sodium	22,508			510,000	7,650	7,810	
Zinc	42.1	1,000	1,100	14.7 J	7.9 J	5.2 J	

Notes:
Shading indicates exceedance of two times the mean base background concentration
Bold box indicates exceedance of NCGWQS
Bold text indicates exceedance of Adjusted Tap Water RSLs

RSLs were adjusted for noncarcinogens to account for exposure to multiple constituents NA - Not analyzed

- NA Not analyzed
 J Analyte present, value may or may not be accurate or precise
 R Unreliable Result
 U The material was analyzed for, but not detected
 UJ Analyte not detected, quantitation limit may be inaccurate
 µg/I micrograms per liter

IR Site 85 Surface Soil Analytical Results Camp Johnson Construction Area Focused PA/SI Report MCB CamLej, North Carolina

Station ID	Camp Leieune		Adjusted	Adjusted	IR85-SS06	IR85-SS07	IR85-SS08	IR8	5-SS09	IR85-SS10	IR85-SS11	IR85-SS12	IR85-SS13	IR8	5-SS14
Sample ID	Background SS	NCSSLs	Industrial	Residential	IR85-SS06-00-01-09C	IR85-SS07-00-01-09C	IR85-SS08-00-01-09C	IR85-SS09-00-01-09C	IR85-SS09D-00-01-09C	IR85-SS10-00-01-09C	IR85-SS11-00-01-09C	IR85-SS12-00-01-09C	IR85-SS13-00-01-09C	IR85-SS14-00-01-09C	IR85-SS14D-00-01-09C
Sample Date	2X Mean	(January, 2010)	Soil RSLs	Soil RSLs	07/09/09	07/09/09	07/09/09	07/10/09	07/10/09	07/10/09	07/10/09	07/10/09	07/10/09	07/10/09	07/10/09
Chemical Name					01700700	01700700	01700700	01/10/00	01/10/00	01/10/03	01710703	01/10/00	01710700	01/10/00	01/10/00
Chemical Name															
Volatile Organic Compounds (µg/kg)															
2-Butanone		16,000	20,000,000	2,800,000	7.8 J	9.7 UJ	9.5 UJ	12 UJ	6.6 J	4.9 R	12 R	7.3 J	6.9 J	14 J	27 J
Acetone		24,000	63,000,000	6,100,000	250 J	85 J	65 J	1,300 J	280 J	75 R	320 J	130 J	110 J	270 J	420 J
Methyl acetate			29,000,000	7,800,000	12 J	3.8 J	8 J	84 J	18 J	15 R	6.2 R	20 J	12 J	12 J	26 J
Methylene chloride		23	53,000	11,000	10 UJ	9.7 UJ	9.5 UJ	12 UJ	12 UJ	7.3 R	12 R	9.3 UJ	9.7 UJ	11 UJ	11 UJ
Saminalatila Ossania Communida (colles)															
Semivolatile Organic Compounds (µg/kg)		7.200	400.000	25.000	140 J	180 U	190 U	58 J	180 U	180 U	180 UJ	180 U	190 U	190 U	190 U
bis(2-Ethylhexyl)phthalate		7,200	120,000	35,000	140 J	180 U	190 0	58 J	180 0	180 0	180 03	180 0	190 0	190 0	190 0
Pesticide/Polychlorinated Biphenyls (μg/kg)															
4,4'-DDD		240	7,200	2,000	1.9 U	1.8 U	0.93 J	1.8 U	1.8 U	0.39 J	1.8 U	1.4 J	1.9 U	1.9 U	1.9 U
4,4'-DDE			5,100	1,400	1.9 U	0.99 J	2.7	2.4 J	2.6 J	4.5	0.64 J	3 J	0.71 J	3.1 J	3 J
4,4'-DDT		340	7,000	1,700	1.9 UJ	0.68 J	1.2 J	2.4 J	0.83 J	3 J	1.8 UJ	3.6 J	0.86 J	1.4 J	1.4 J
Aroclor-1254			740	110	19 U	18 U	19 U	17 U	18 U	18 U	18 U	17 U	17 U	17 U	17 U
Dieldrin		0.81	110	30	1.9 U	1.8 U	1.9 U	1.8 UJ	1.8 U	1.8 U	1.8 U	1.8 UJ	1.9 UJ	1.9 UJ	1.9 UJ
gamma-Chlordane		68	6,500	1,600	1.9 U	1.8 U	1.9 U	1.8 UJ	1.8 U	1.8 U	1.8 U	1.8 UJ	1.9 UJ	1.9 UJ	1.9 UJ
Total Maria (confine)															
Total Metals (mg/kg)								3.370 J+		- 100	5,690				
Aluminum	5,487 0.447		99,000 41	7,700	6,090 J+	3,780 J+	3,480 J+		3,250 J+ 1.5 U	5,180		3,960 J+	3,390 J+	7,220 J+	7,300 J+
Antimony	0.447	5.8		3.1	1.6 U	1.6 U	1.6 U	1.6 UJ		1.5 UJ	1.5 UJ	1.6 UJ	1.6 UJ	1.6 UJ	1.6 UJ
Arsenic			1.6	0.39	<u>0.83</u> <u>J</u>	<u>0.78</u> <u>J</u>	<u>0.85</u> <u>J</u>	<u>1.1 J</u>	<u>0.93</u> <u>J</u>	<u>1.1 J</u>	<u>0.91 J</u>	<u>0.83</u> <u>J</u>	<u>0.57</u> <u>J</u>	<u>1.2 J</u>	<u>1.2 J</u>
Barium	14.5 0.103	580	19,000 200	1,500	10.8 0.16 U	8.6 0.16 U	9.4 0.16 U	10 0.055 J	9 0.15 U	12.6 0.034 J	10.6 0.036 J	9.9 0.047 J	5.9 0.025 J	13.4 0.031 J	13.3 0.042 J
Beryllium	0.103			16	0.16 U 0.49 U	0.16 U 0.47 U	0.16 U 0.49 U	0.055 J 0.47 U	0.15 U 0.46 U	0.034 J 0.45 U	0.036 J 0.46 U	0.047 J 0.48 U	0.025 J 0.48 U	0.031 J 0.48 U	0.042 J 0.49 U
Cadmium	6,360	3	80	/	82.1 U	78.7 U	167			0.45 U 266	76.4 U		97.5	0.48 U 37.2 J	0.49 U 40.5 J
Calcium	6,360							316	282			118	97.5		
Chromium	0.294	3.8	5.6	0.29	3.5	2.8	3.3	2.7	2.7	4.1	3.2	3.6	3	4.5	4.5
Cobalt	0.294 4.83	700	30 4.100	2.3	0.41 U 2.4	0.39 U 1.3 J	0.12 J 4.3	0.11 J 0.69 J	0.11 J 0.76 J	0.21 J	0.11 J 1.4 J	0.13 J 4.7	0.11 J	0.17 J 1.5 J	0.19 J 1.4 J
Copper	3,245	150	72,000	310 5,500	2,310		1,820	2,040	2,000	2,530		2,010	2.8	3,730	3,700
Iron						1,690					1,830		1,870		
Lead	12.3 238	270	800	400	4.8 173	7.2 108	7.8 110	7.8 95.8	6.5 95.2	17.5 173	6.2 146	17.4 112	7.2 98.1	7.5 172	7.3 178
Magnesium	13.7	 65	2,300		173	9.6	22.6	95.8 6.7	95.2 7.7	43.7	5.9	20.4	98.1	9.1	9.9
Manganese	0.081	00	2,300	180 2.4	0.044	0.033 U	0.038	0.032 U	0.037	43.7 0.31	0.034 U	0.055	0.039	9.1 0.059	9.9 0.06
Mercury Nickel	1.21	130	2.000	160	1.2	0.033 0	1.1	0.032 0	0.037	1.3	2.5	1.3	1.4	0.059	1.2
Nickei Potassium	1.21	130	2,000	160	1.2	0.91 73.1 J	1.1 81.7 U	78.3 U	0.81 72.1 J	1.3	96.9	79.5 U	79.3 U	1.3	1.2
Selenium	0.563	2.1	510	39	1.6 U	73.1 J 1.6 U	81.7 U 1.6 U	78.3 U 1.6 U	72.1 J 1.5 U	115 1.5 U	96.9 1.5 U	79.5 U	79.3 U 1.6 U	0.45 J	117 1.6 U
Silver	0.565	3.4	510	39	1.6 U	0.083 J	1.6 U	1.6 U	1.5 U	1.5 U	1.5 U	0.15 J	0.21 J	0.45 J 1.6 U	1.6 U
Sodium	80.9		510	39	3.2 J	3.7 J	204 U	5.7 J	7.5 J	3.4 J	4.3 J	3.9 J	198 U	6.8 J	6.4 J
Thallium	0.36		6.6	0.51	2.5 U	2.4 U	2.4 U	2.3 U	2.3 U	2.3 U	2.3 U	2.4 U	2.4 U	2.4 U	2.5 U
Vanadium	8.9		520	39	6.6	5.7	5.5	6 J	5.8	7.7	7.1	5.9 J	5.3 J	9.8 J	10 J
Zinc	10.8	1,200	31,000	2.400	33.4	5.2	31.4	3.9 U	3.9 U	252	4.2	30.2	22.9	4 U	4.1 U
	10.0	1,200	0.,000	2,	30.7	V.E	U	0.00	0.0 0	202		30.2			0
Wet Chemistry		1	1	1											
pH					4.8	4.5	5.6	4.4	4.5	5.6	4.3	4.8	4.8	4.4	4.4
L.		•	•		1		•	•	-	•	•	•	•	•	

Notes:
Shading indicates exceedance of two times the mean base background concentration
Bold box indicates exceedance of NCSSLs
Bold text indicates exceedance of Adjusted Industrial Soil RSLs

Underline indicates exceedance of Adjusted Residential Soil RSLs
RSLs were adjusted for noncarcinogens to account for exposure to multiple constituents

NA - not analyzed

J - Analyte present, value may or may not be accurate or precise

J- - Analyte present, value may be biased low, actual value may be higher

J+ - Analyte present, value may be biased high, actual value may be lower

R - Unreliable Result
U - The material was analyzed for, but not detected
UJ - Analyte not detected, quantitation limit may be inaccurate

mg/kg - Milligrams per kilogram μg/kg - micrograms per kilogram

IR Site 85 Surface Soil Analytical Results Camp Johnson Construction Area Focused PA/SI Report MCB CamLej, North Carolina

Station ID	Camp Lejeune		Adjusted	Adjusted	IR85-SS15	IR85-SS16	IR85-SS17	IR85-SS18	
Sample ID	Background SS	NCSSLs	Industrial	Residential	IR85-SS15-00-01-09C	IR85-SS16-00-01-09C	IR85-SS17-00-01-09C	IR85-SS18-00-01-09C	
Sample Date	2X Mean	(January, 2010)	Soil RSLs	Soil RSLs	07/10/09	07/10/09	07/10/09	07/10/09	
	ZX MCuii		COII ILOES	OOII NOES	07/10/09	07/10/09	07/10/09	07/10/09	
Chemical Name									
Volatile Organic Compounds (μg/kg)									
2-Butanone		16,000	20,000,000	2,800,000	8.6 UJ	13 UJ	19 UJ	11 R	
Acetone		24,000	63,000,000	6,100,000	38 J	40 J	360 J	72 J	
Methyl acetate		24,000	29,000,000	7,800,000	5.7 J	11 J	200 J	5.4 R	
Methylene chloride		23	53,000	11,000	8.6 UJ	13 UJ	14 J	11 R	
,		-		,			-		
Semivolatile Organic Compounds (µg/kg)									
bis(2-Ethylhexyl)phthalate		7,200	120,000	35,000	29 J	190 U	230 U	220 U	
						-			
Pesticide/Polychlorinated Biphenyls (µg/kg)									
4,4'-DDD		240	7,200	2,000	1.9 U	0.97 J	2.3 U	3.1 J	
4,4'-DDE			5,100	1,400	2.4 J	4.5 J	1.5 J	29 J	
4,4'-DDT Aroclor-1254		340	7,000 740	1,700 110	3 J 40 J	1.9 J 17 U	4 J 50	25 J 22 U	
Dieldrin		0.81	110	30	1.9 UJ	1.9 UJ	1.9 J	2.2 UJ	
gamma-Chlordane		68	6,500	1,600	1.9 UJ	1.9 UJ	0.88 J	2.2 UJ 2.7 J	
gariiria-Criiordane		00	0,500	1,000	1.9 03	1.9 03	0.00 J	Z.1 J	
Total Metals (mg/kg)									
Aluminum	5.487		99,000	7,700	4.960 J+	4.100 J+	2,980 J+	4,330	
Antimony	0.447		41	3.1	1.7 UJ	1.6 UJ	38.5 UJ	5.9 J-	
Arsenic	0.626	5.8	1.6	0.39	1.5 J	1.9	9.9 J	2.3 J	
Barium	14.5	580	19,000	1,500	14.2	15.7	31 J	24 U	
Beryllium	0.103		200	16	0.049 J	0.042 J	3.9 U	0.096 J	
Cadmium	0.033	3	80	7	0.59	0.49 U	2.9 J	3.5	
Calcium	6,360				289	468	1,930 U	481 U	
Chromium	6.05	3.8	5.6	0.29	<u>4.5</u>	<u>5.1</u>	38.5 U	<u>8.5</u> <u>J</u>	
Cobalt	0.294		30	2.3	0.3 J	0.31 J	<u>2.4 J</u>	0.66 J	
Copper	4.83	700	4,100	310	26.5	13.2	79.5	214	
Iron	3,245	150	72,000	5,500	3,170	3,990	4,820	<u>11,500</u>	
Lead	12.3	270	800	400	42.6	35.2	165	<u>614</u>	
Magnesium	238				165	143	80.5 J	143	
Manganese	13.7	65	2,300	180	<u>294</u>	417	<u>10,700</u>	<u>1,120</u>	
Mercury	0.081	1	31	2.4	1.1	0.27	<u>5</u>	8.8	
Nickel	1.21	130	2,000	160	2.2	1.8	8.7 J	2.8 J	
Potassium Selenium	116 0.563	2.1	 510	39	126 1.7 U	109 1.6 U	1,930 U 38.5 U	117 J 9.6 U	
Silver	0.563	3.4	510	39	0.11 J	0.29 J	38.5 U	9.6 U	
Sodium	80.9	3.4 			207 U	0.29 J 206 U	4,820 U	1,200 U	
Thallium	0.36		6.6	0.51	2.5 U	0.44 J	18.7 J	1,200 U	
Vanadium	8.9		520	39	7.8 J	7.6 J	96.3 U	9 J	
Zinc	10.8	1,200	31,000	2,400	758	406	5,600	2,100	
· ·		-,	,	-,			*,***	_,	
Wet Chemistry									
pH			1		5.9	6.4	6.4	5.4	

Notes:
Shading indicates exceedance of two times the mean base background concentration
Bold box indicates exceedance of NCSSLs
Bold text indicates exceedance of Adjusted Industrial Soil RSLs

Underline indicates exceedance of Adjusted Residential Soil RSLs RSLs were adjusted for noncarcinogens to account for exposure to multiple constituents

- NA not analyzed

 J Analyte present, value may or may not be accurate or precise

 J- Analyte present, value may be biased low, actual value may be higher

 J+ Analyte present, value may be biased high, actual value may be lower
- R Unreliable Result
- U The material was analyzed for, but not detected

 UJ Analyte not detected, quantitation limit may be inaccurate
- mg/kg Milligrams per kilogram μg/kg micrograms per kilogram

IR Site 85 Subsurface Soil Analyical Results Camp Johnson Construction Area Focused PA/SI Report MCB CamLej, North Carolina

Station ID	Camp Lejeune		Adjusted	Adjusted	IR85-SB06	IR85-SB07	IR85-SB08	IR85-SB09	IR85-SB10	IR85-SB11	IR85-SB12	IR85-SB13	IR85-SB14	IR8	5-SB17
Sample ID	Background SB 2X	NCSSLss	Industrial	Residential	IR85-SB06-2-7-09C	IR85-SB07-2-4-09C	IR85-SB08-2-7-09C	IR85-SB09-2-7-09C	IR85-SB10-4-7-09C	IR85-SB11-2-7-09C	IR85-SB12-2-7-09C	IR85-SB13-2-7-09C	IR85-SB14-2-7-09C	IR85-SB17-6-7-09C	IR85-SB17D-6-7-09C
Sample Date	Mean	(January, 2010)	Soil RSLs	Soil RSLs	07/29/09	07/28/09	07/28/09	07/27/09	07/29/09	07/29/09	07/28/09	07/28/09	07/29/09	07/28/09	07/28/09
					01720700	01/20/00	01/20/00	01/21/00	01/20/00	01720700	01/20/00	01720/00	01/20/00	01/20/00	01/20/00
Chemical Name			-												
Volatile Organic Compounds (µg/kg)															
1,2,4-Trichlorobenzene		2,200	28,000	6,200	2.1 J	1.4 R	2.6 J	1.9 UJ	2 J	2.7 J	1.7 U	1.6 UJ	2 J	1.8 UJ	5.9 R
1,2-Dibromo-3-chloropropane		0.25	69	5.4	1.6 U	1.4 R	2.1 UJ	1.9 UJ	1.6 U	2.4 J	1.7 U	1.6 UJ	1.7 U	1.8 UJ	5.9 R
1,3-Dichlorobenzene		7,600			1.2 J	1.4 R	1.4 J	1.9 UJ	1.6 UJ	1.4 J	1.7 U	1.6 UJ	1.7 U	1.8 UJ	5.9 R
2-Butanone		16.000	20.000.000	2.800.000	1.5 J	2.8 J	2.3 J	3.8 UJ	2.6 J	2.6 J	3.5 U	4.1 J	3.2 J	1.6 J	12 R
4-Methyl-2-pentanone			3,400,000	530.000	3.3 U	2.9 R	4.1 UJ	3.8 UJ	3.1 U	1.5 J	3.5 U	3.3 UJ	3.3 U	3.6 UJ	12 R
Acetone		24,000	63,000,000	6,100,000	30 J	76 J	39 J	3.8 UJ	69 J	33 J	3.5 U	100 J	75 J	90 J	20 J
Chloroform		340	1,500	300	1.6 U	1.4 R	2.1 UJ	1.9 UJ	1.6 U	1 J	1.7 U	1.6 UJ	1.7 U	1.8 UJ	5.9 R
Isopropylbenzene		1,300	270,000	210,000	2.2 J	1.4 R	2.7 J	1.9 UJ	2 J	2.6 J	1.7 U	2.1 J	1.7 U	1.8 UJ	5.9 R
Methyl acetate			29,000,000	7,800,000	1.6 U	20 J	6.8 J	1.9 UJ	1.6 U	1.3 J	3.4	1.2 J	1.7 U	3 J	5.9 R
Methylene chloride		23	53,000	11,000	1.7 J	1.9 J	2.3 J	1.4 J	3.1 U	0.88 J	1.7 J	1.4 J	3.3 U	0.62 J	12 R
Styrene		920	870,000	630,000	2.2 J	1.4 R	2.8 J	1.9 UJ	2.1 J	2.7 J	1.7 U	2.3 J	3.3 U	2.5 J	5.9 R
Tetrachloroethene		5	2,600	550	1.3 J	1.4 R	1.6 J	1.9 UJ	1.6 U	1.6 J	1.7 U	1.3 J	1.7 U	1.8 UJ	5.9 R
Toluene		5,500	820,000	500,000	1.6 U	1.4 R	2.1 UJ	1.9 UJ	1.6 U	1.9 U	1.7 U	1.6 UJ	1.7 U	0.64 J	5.9 R
Oranical-file Orana is Community (confirm)															
Semivolatile Organic Compounds (μg/kg) bis(2-Ethylhexyl)phthalate		7,200	120.000	35,000	180 U	190 U	180 U	190 U	190 U	190 U	190 U	190 U	58 J	190 U	200 U
bis(2-Ethylnexyr)phthalate		7,200	120,000	35,000	180 0	190 0	160 0	190 0	190 0	190 0	190 0	190 0	36 J	190 0	200 0
Pesticide/Polychlorinated Biphenyls (µg/kg)															
4,4'-DDD		240	7,200	2,000	1.8 U	1.3 J	1.8 U	1.9	1.9 U	1.9 U	1.7 U	1.9 U	1.9 U	1.9 U	2 U
4,4'-DDE			5,100	1,400	2	31	1.8 U	1.7 U	1.9 U	1.9 U	1.7 U	1.9 U	1.9 U	1.9 U	2 U
4,4'-DDT		340	7,000	1,700	1.3 J	10	1.8 U	1.7 U	1.9 U	1.9 U	1.7 U	1.9 U	1.9 U	1.9 U	2 U
delta-BHC		1.2	960	270	1.8 U	1.9 U	1.8 U	1.7 U	1.9 U	1.9 U	1.7 U	1.1 J	1.9 U	1.9 U	2 U
gamma-Chlordane		68	6,500	1,600	1.8 U	1.9 U	1.8 U	1.7 U	1.9 U	1.9 U	1.7 U	1.9 J	1.9 U	1.9 U	2 U
Total Metals (mg/kg)															
Aluminum	10,369		99,000	7,700	3,830	6,420	3,750	12,000	4,090	6,230	5,180	6,180	6,260	2,560	4,610
Arsenic	2.12	5.8	1.6	0.39	<u>1</u> <u>J</u>	<u>2.3</u>	<u>0.92</u> J	<u>1.7</u>	<u>0.68</u> <u>J</u>	<u>1.2 J</u>	<u>1.2</u> <u>J</u>	<u>1.1</u> J	<u>1.4</u> <u>J</u>	<u>0.67</u> <u>J</u>	<u>1.7 J</u>
Barium	16.6	580	19,000	1,500	5.8	11.2	6.6	16.2	4.9	8.9	7.4	9	7.9	4 U	6.1
Beryllium Calcium	0.165 441		200	16	0.16 U 81.2 U	0.16 U 79.1 U	0.024 J 79 U	0.072 J 84.8	0.16 U 80.1 U	0.16 U 80.8 U	0.037 J 79 U	0.16 U 78.2 U	0.033 J 16.6 J	0.16 U 80 U	0.17 U 83 U
Chromium	14.5	3.8	5.6	0.29	4.5	79.1 0 7.5	4.3	12.5	4.3			5.7	6.3 J	3.7	6.2
Cobalt	0.822		3.0	2.3	0.41 U	0.3 J	0.39 U	0.72	0,21 J	6.1 0.4 U	<u>5.6</u> 0.21 J	0.39 U	0.3 <u>J</u> 0.4 U	0.4 U	0.42 U
Copper	2.56	700	4.100	310	1.3 J	0.99 J	0.89 J	1.6	0.54 J	0.4 U 0.82 J	0.21 J 0.95 J	0.39 U	0.4 U 0.8 J	0.4 U	1.7
Iron	5,439	150	72,000	5,500	2,640	4,620	2,010	5,040	1,670	3,790	3,310	3,440	4,050 J+	1,750	2,940
Lead	8.49	270	800	400	5.2	4.8	3.3	7.7	2.8	3.6	4.3	4.5	3.7	3	4.9
Magnesium	363				131	219	125	424	149	201	158	208	202	84.5	165
Manganese	9,25	65	2.300	180	9.6	6.6	31.2	19	4.5	4.5	5.2	5.9	4.5	3.1	5
Mercury	0.071	1	31	2.4	0.17	0.034 U	0.035	0.037 U	0.035 U	0.035 U	0.033 U	0.036 U	0.033 U	0.033 U	0.034 U
Nickel	2.27	130	2,000	160	0.85	1.5	0.86	2.4	0.76 J	1	1.2	1	1.1	0.8 U	0.83 U
Potassium	361				104	164	109	306	123	139	131	137	145	95	165
Selenium	0.505	2.1	510	39	1.6 U	1.6 U	1.6 U	0.47 J	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.7 U
Silver	0.129	3.4	510	39	1.6 U	1.6 U	1.6 U	0.083 J	0.17 J	1.6 U	0.086 J				
Sodium	68.3				8.3 J	10.8 J	8.6 J	23.1 J	4.6 J	8.3 J	4.1 J	6.2 J	199 U	3.1 J	5.1 J
Vanadium	17.2		520	39	7.5 J	13.1 J	6.1 J	16.4	6.1 J	10.4 J	8.4	9.3 J	10.5	4.9 J	9 J
Zinc	6.59	1,200	31,000	2,400	23.7	4 U	51.2	6.6	4 U	4 U	6.5	10.6	4 U	27.8	52.9
Wet Chemistry							,_				***				
рн					4.3	4.6	4.7	4.6	4.4	4.5	NA	4.6	4.2	4.5	4.5

Notes:
Shading indicates exceedance of two times the mean base background concentration
Bold box indicates exceedance of NCSSLs
Bold text indicates exceedance of Adjusted Industrial Soil RSLs

Underline indicates exceedance of Adjusted Residential Soil RSLs
RSLs were adjusted for noncarcinogens to account for exposure to multiple constituents

NA - not analyzed

J - Analyte present, value may or may not be accurate or precise J+ - Analyte present, value may be biased high, actual value may be lower

R - Unreliable Result

U - The material was analyzed for, but not detected

UJ - Analyte not detected, quantitation limit may be inaccurate

mg/kg - milligrams per kilogram

μg/kg - micrograms per kilogram

IR Site 85 Groundwater Analytical Results Camp Johnson Construction Area Focused PA/SI Report MCB CamLej, North Carolina

- · · · ·	i												
Station ID	Camp Lejeune	NCGWQS	Adjusted Tap	IR85-MW01	IR85-MW02	IR85-MW04	IR85-MW05	IR85-TW04	IR85-TW05		-TW06	IR85-TW07	IR85-TW08
Sample ID	Background GW	(January, 2010)	Water RSLs	IR85-MW01-09C	IR85-MW02-09C	IR85-MW04-09C	IR85-MW05-09C	IR85-TW04-09C	IR85-TW05-09C	IR85-TW06-09C	IR85-TW06D-09C	IR85-TW07-09C	IR85-TW08-09C
Sample Date	2X Mean	(,		07/23/09	07/23/09	07/22/09	07/21/09	07/27/09	07/29/09	07/30/09	07/30/09	07/30/09	07/30/09
Chemical Name													
Volatile Organic Compounds (µg/l)													
Chloroform		70	0.19	1 U	6.2	1 U	11 J	1 U	1 U	1 U	1 U	1 U	2.2 UJ
Methylene chloride		5	4.8	1 U	1 U	1 UJ	11 J	1 U	1 U	190	190	1 U	14 J
incuryione emonde		3	4.0	10	10	1 00	1 00	10	10	130	130	10	140
Semivolatile Organic Compounds (µg/l)													
No Detections				NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticide/Polychlorinated Biphenyls (µg/l)													
4,4'-DDD		0.1	0.28	0.051 U	0.052 U	0.078 U	0.05 U	0.05 U	0.05 U	0.079 J	0.05 U	0.05 U	0.05 U
1,1 222		0	0.20	0.001.0	0.002 0	0.070	0.00	0.00 0	0.00 0	0.070	0.00 0	0.00 0	0.00 0
Total Metals (µg/l)													
Aluminum	1,886		3,700	124 J	873 J	560 J	469 J	182 J	110 J	15,100	9,130	148 J	921 J
Arsenic	5.77	10	0.045	20 U	2 J	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Barium	86.2	700	730	50 U	56.9	39.6 J	37 J	24.2 J	41.3 J	50 U	50 U	50 U	50 U
Beryllium	0.308	4	7.3	0.11 J	0.27 J	0.17 J	0.11 J	0.098 J	2 U	2 U	2 U	2 U	2 U
Cadmium	0.358	2	1.8	6 U	6 U	0.14 J	6 U	6 U	0.16 J	6 U	6 U	6 U	0.28 J
Calcium Chromium	69,078 3.13	 10	0.043	569 J	1,330 J 20 U	1,960 20 U	760 J 20 U	579 J 20 U	1,130 20 U	3,190 18.9 J	3,140 11.7 J	2,200 20 U	1,280 1.8 J
				20 U									
Cobalt	3.4 2.76	1.000	1.1 150	5 U 20 U	0.67 J 40 U	0.78 J	5 U 20 U	0.89 J	1.2 J 2.4 J	5 U 6.8 J	5 U 6.2 J	0.64 J	5 U 5.6 J
Copper	5,999	300	2,600	166	1,050	20 U 425	20 U 106 J	2.4 J 531	6,380	6,900	4,770	4.1 J 1.110	1,480
Iron Lead	2.8	15	2,600	20 U	40 U	425 2.4 J	20 U	20 U	20 U	15.9 J	4,770 12.7 J	20 U	3.7 J
						2.4 J 445	2,480	836					379
Magnesium	6,363 214	 50	 88	1,350	2,310 22	5.8	2,480 4.2 J	9.6	2,510 72.5	2,060	1,540 66.4	1,160 29	36.5
Manganese		50 1		8	0.085 J	0.2 U	-	0.036 J		70.8 0.2 U	0.2 U	-	
Mercury Nickel	0.1 7.97	100	1.1 73	0.2 U 1.2 J	0.085 J 3 J	0.2 U 1.5 J	0.2 U 10 U	10 U	0.2 U 19.7	7.9 J	0.2 U 6.6 J	0.2 U 9.5 J	0.2 U 2.2 J
Potassium	3,277			498 J	2,180	496 J	650 J	726 J	813 J	1,210	1,010	624 J	656 J
Selenium	3,277	20	18	20 U	2,180 20 U	20 U	20 U	20 U	4.3 J	20 U	20 U	20 U	20 U
Silver	0.77	20	18	20 U	20 U	20 U	20 U	1.5 J	20 U	20 U	20 U	20 U	20 U
Sodium	22,508			6,620	14,900	4,910	5,140	3,070	4,510	26,800	25,700	2,840	13,200
Zinc	42.1	1,000	1,100	4.4 J	16.6 J	12.6 J	50 U	50 U	30.9 J	48 J	41.1 J	13.7 J	110
Discolus d Matela (varil)													
Dissolved Metals (μg/l) Aluminum	1,886		3,700	NA	NA	NA	NA	41.2 J	92.7 J	1,000 U	1,000 U	106 J	1,000 U
Barium	86.2	700	730	NA NA	NA NA	NA NA	NA NA	23.3 J	41.5 J	50 U	50 U	50 U	50 U
Beryllium	0.308	4	7.3	NA NA	NA NA	NA NA	NA NA	2 U	0.13 J	2 U	2 U	2 U	2 U
Calcium	69,078	-		NA NA	NA NA	NA NA	NA NA	586 J	1,140	1,000 U	1,000 U	2,130	1,000 U
Chromium	3.13	10	0.043	NA NA	NA	NA NA	NA NA	20 U	20 U	20 U	20 U	1.4 J	20 U
Cobalt	3.4		1.1	NA	NA	NA	NA	0.82 J	1.1 J	5 U	5 U	0.76 J	5 U
Copper	2.76	1,000	150	NA	NA	NA	NA	20 U	2.6 J	20 U	2.2 J	5.2 J	20 U
Iron	5,999	300	2,600	NA	NA	NA	NA	433	6,090	150 U	150 U	1,050	144 J
Magnesium	6,363			NA	NA	NA	NA	817	2,460	250 U	250 U	1,150	130 J
Manganese	214	50	88	NA	NA	NA	NA	9.9	70.1	1.5 J	1.3 J	28.8	15.3
Mercury	0.1	1	1.1	NA	NA	NA	NA	0.2 U	0.2 U	0.2 U	0.2 U	0.04 J	0.2 U
Nickel	7.97	100	73	NA	NA	NA	NA	10 U	19.5	10 U	10 U	9.6 J	1.3 J
Potassium	3,277			NA	NA	NA	NA	688 J	852 J	506 J	492 J	559 J	624 J
Selenium	3.14	20	18	NA	NA	NA	NA	20 U	4.3 J	20 U	20 U	20 U	20 U
Sodium	22,508			NA	NA	NA	NA	2,920	4,660	27,300	26,500	2,800	13,600
Zinc	42.1	1,000	1,100	NA	NA	NA	NA	6.8 J	31.5 J	50 U	50 U	13.5 J	49.5 J

Notes:
Shading indicates exceedance of two times the mean base background concentration
Bold box indicates exceedance of NCGWQS
Bold text indicates exceedance of Adjusted Tap Water RSLs

RSLs were adjusted for noncarcinogens to account for exposure to multiple constituents

NA - not analyzed
J - Analyte present, value may or may not be accurate or precise
R - Unreliable Result

U - The material was analyzed for, but not detected UJ - Analyte not detected, quantitation limit may be

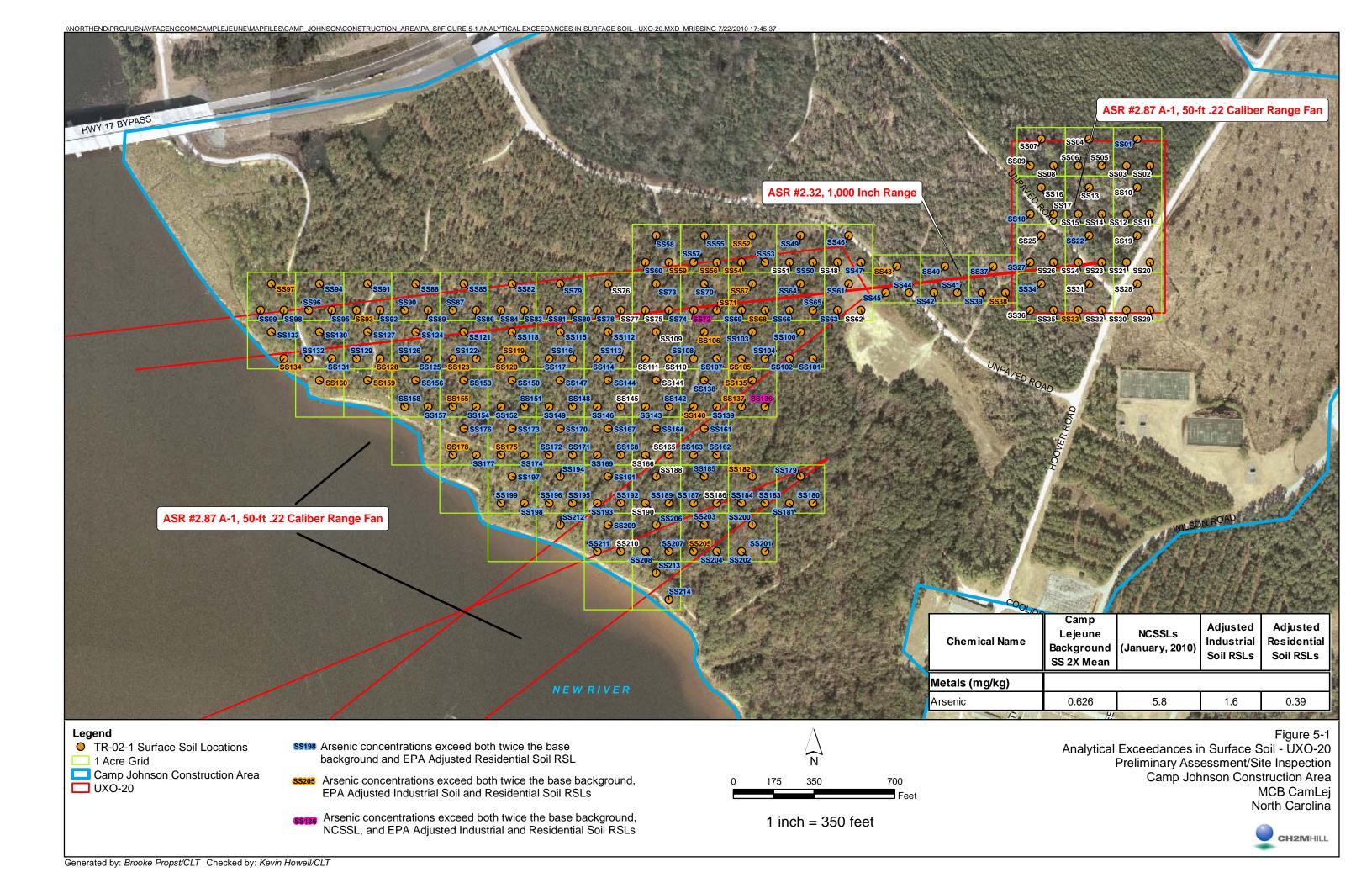
μg/l - micrograms per liter

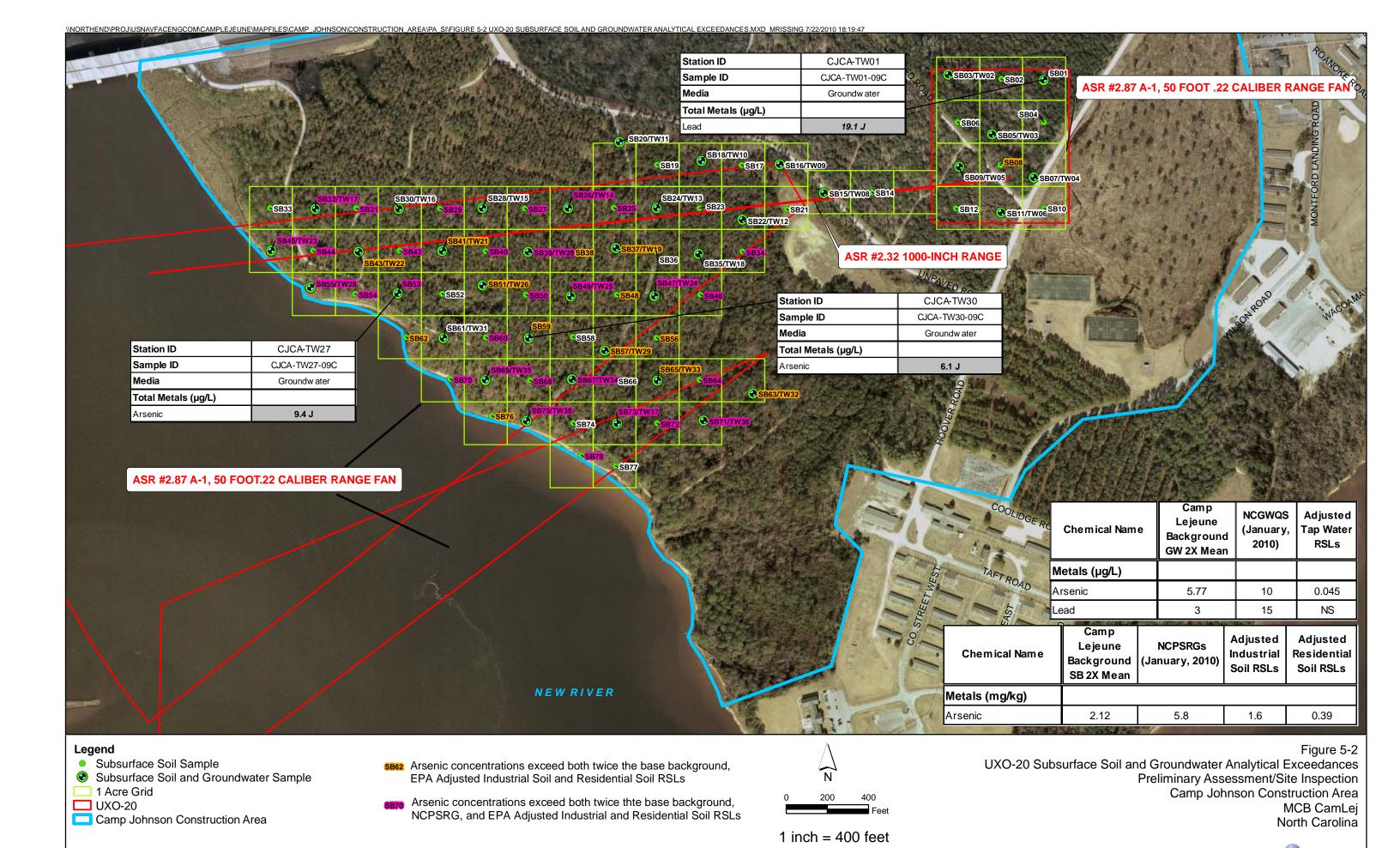
IR Site 85 Battery Analytical Data Camp Johnson Construction Area Focused PA/SI Report MCB CamLej, North Carolina

Station ID	IR85-BAT
Sample ID	IR85-BAT-071009
Sample Date	07/10/09
Chemical Name	
Total Metals (mg/kg)	
Aluminum	7,460 U
Antimony	149 UJ
Arsenic	2.2 J
Barium	37.3 U
Beryllium	1.5 U
Cadmium	12
Calcium	195 J
Chromium	4.7 J
Cobalt	3.7 U
Copper	250
Iron	1,780
Lead	1,640
Magnesium	98.1 J
Manganese	2,740
Mercury	222
Nickel	5.9 J
Potassium	7,460 U
Selenium	14.9 U
Silver	14.9 U
Sodium	1,870 U
Thallium	NA
Vanadium	373 U
Zinc	45,000

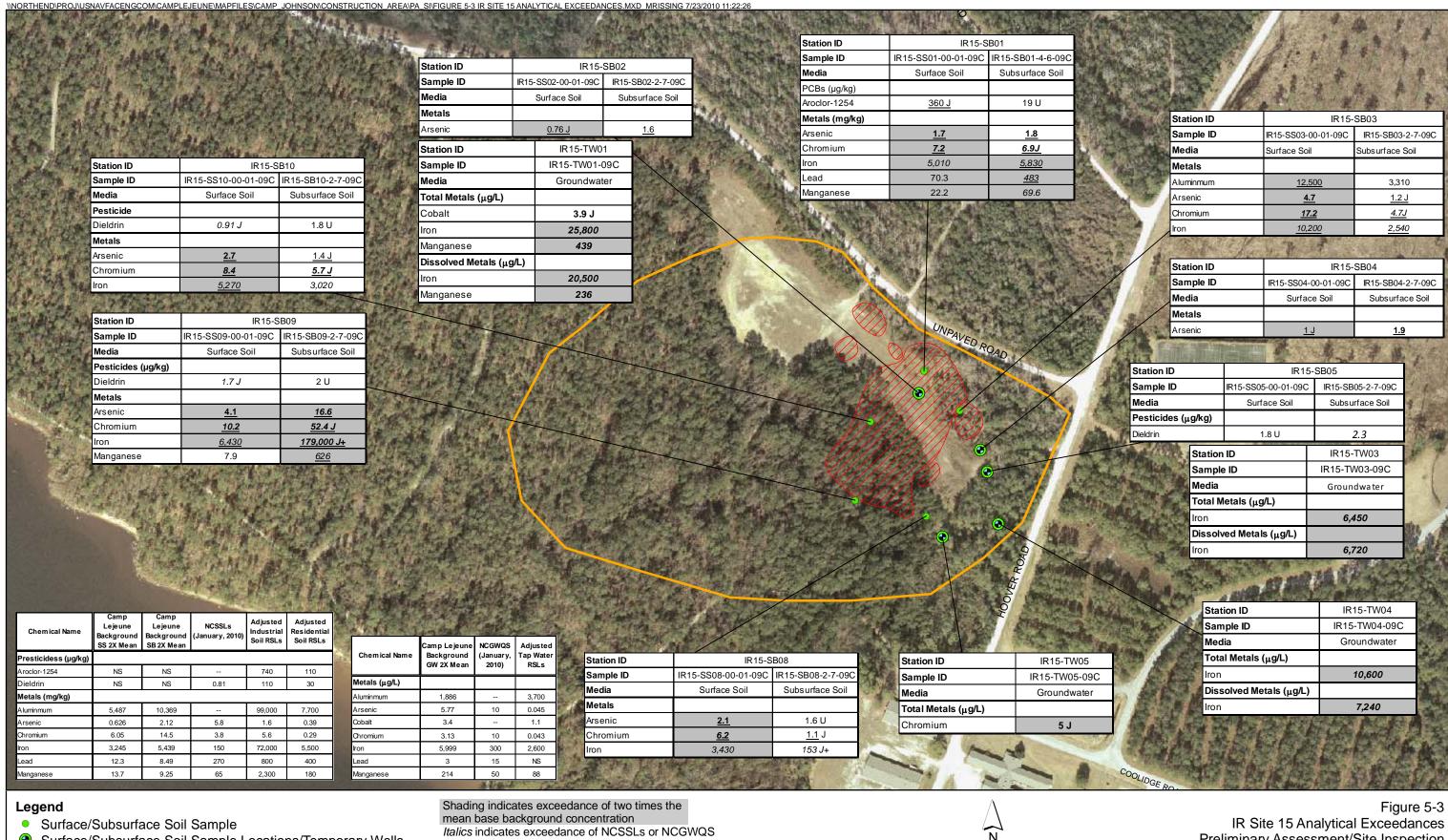
Notes:

- J Analyte present, value may or may not be accurate or precise
- U The material was analyzed for, but not detected
- UJ Analyte not detected, quantitation limit may be inaccurate





CH2MHILL



Surface/Subsurface Soil Sample Locations/Temporary Wells

Approximate Electromagnetic Geophysical Anomaly

IR Site 15 Boundary

Bold text indicates exceedance of Adjusted Industrial

Soil RSLs or Adjusted Tapwater RSL

Underline indicates exceedance of Adjusted Residential Soil RSLs

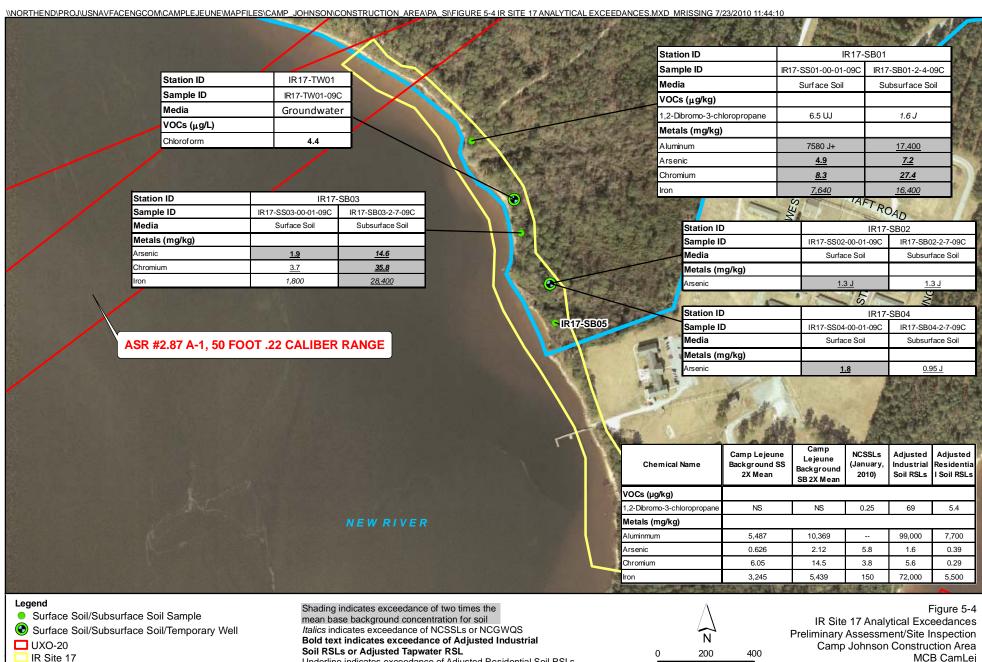
- U The material was analyzed for, but not detected
- J Analyte present, value may or may not be accurate or precise
- J+ Analyte present, value may be biased high, actual value may be lower NS - No standard



1 inch = 250 feet

Preliminary Assessment/Site Inspection Camp Johnson Construction Area MCB CamLei North Carolina





Camp Johnson Construction Area

Underline indicates exceedance of Adjusted Residential Soil RSLs

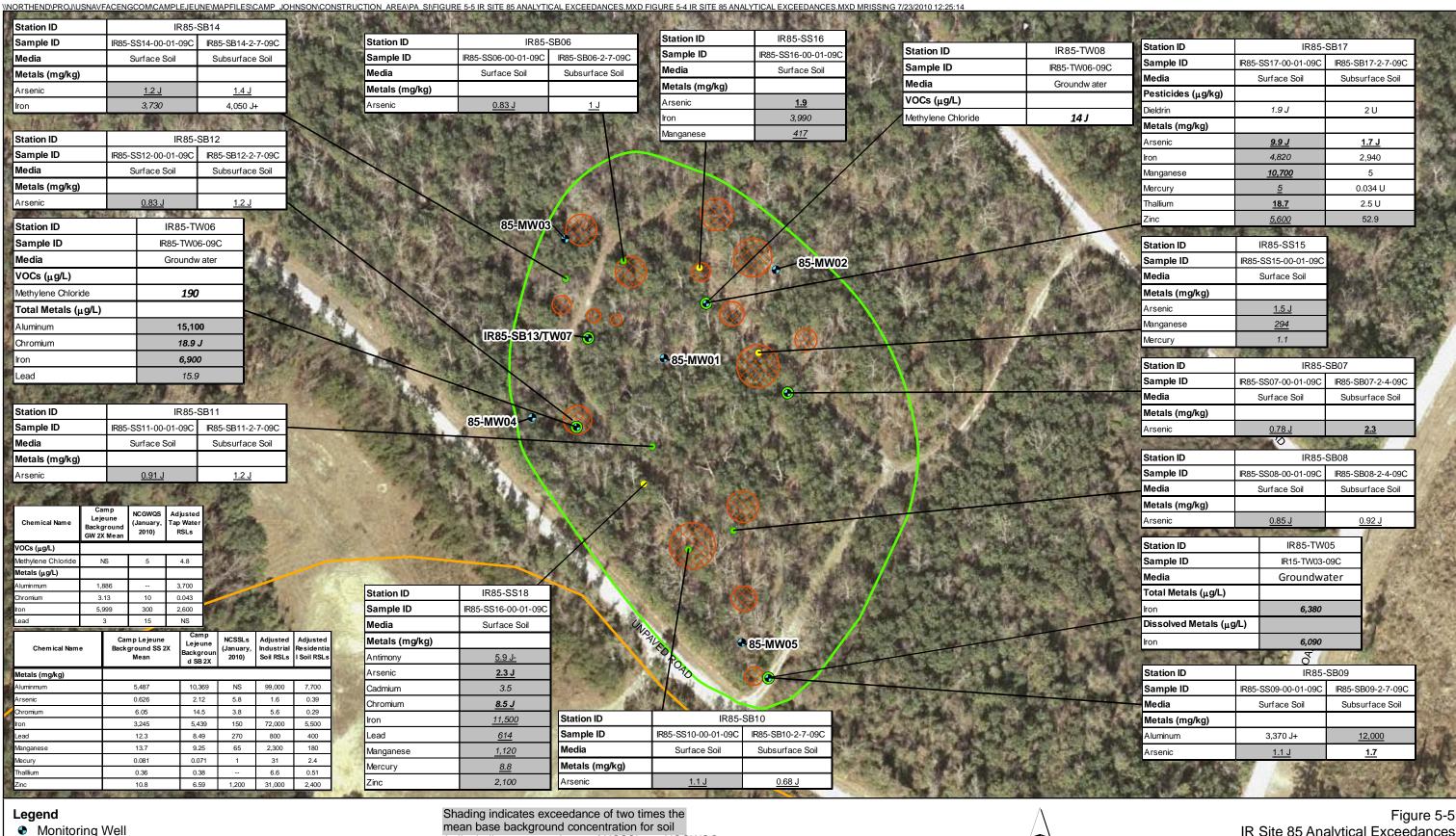
U - The material was analyzed for, but not detected

J - Analyte present, value may or may not be accurate or precise J+ - Analyte present, value may be biased high, actual value may be lower NS - No standard

1 inch = 400 feet

MCB CamLei North Carolina





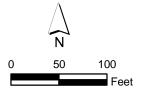
- Surface Soil Sample
- Surface Soil/Subsurface Soil Sample
- Surface Soil/Subsurface Soil/Temporary Well
- Former Battery Pile
- Approximate Former IR Site 85 Boundary
- IR Site 15 Boundary

Italics indicates exceedance of NCSSLs or NCGWQS

Bold text indicates exceedance of Adjusted Industrial Soil RSLs or Adjusted Tapwater RSL

Underline indicates exceedance of Adjusted Residential Soil RSLs

- U The material was analyzed for, but not detected
- J Analyte present, value may or may not be accurate or precise
- J- Analyte present, value may be biased low, actual value may be higher
- J+ Analyte present, value may be biased high, actual value may be lower NS - No standard



1 inch = 100 feet

IR Site 85 Analytical Exceedances Preliminary Assessment/Site Inspection Camp Johnson Construction Area MCB CamLei North Carolina



Human Health Risk Screening

A conservative preliminary human health risk screening (HHRS) was performed to assess the potential for human health risks associated with exposure to site media (soil and groundwater) at four areas within the CJCA, including UXO-20 and IR Sites 15, 17, and 85. The purpose of the HHRS is to provide a preliminary indication of potential risks from constituents of potential concern (COPCs), and to evaluate whether future residential use is acceptable or if further evaluation is required (e.g., a baseline risk assessment, additional data collection).

The data included in the risk evaluation were validated, and evaluated to determine the reliability of the data for use in the HHRS. A review of the data identified the following criteria for data usability:

- Estimated values flagged with a J and/or P qualifier (including J-, J+, and JP qualifiers) were treated as detected concentrations
- The maximum concentration between parent/duplicate samples was used as the sample concentration
- Unfiltered groundwater samples were analyzed in the risk evaluations following EPA Region IV guidance (EPA, 2000).

6.1 Human Health Conceptual Site Model

The human health conceptual site model (CSM) presents an overview of site conditions, potential contaminant migration pathways, and exposure pathways to potential receptors. The human health CSM for soil and groundwater is presented in **Figure 6-1**. Refer to **Section 2.2** for a detailed summary of the site history and setting. A summary of the human health CSM is provided below.

Potential current receptors include visitors, trespassers, Base/industrial workers, and maintenance workers. The current receptors may come in contact with surface soil. Exposure routes may include incidental ingestion of and dermal contact with the surface soil, and inhalation of volatile and particulate emissions from the surface soil.

Potential future receptors include current receptors, and construction workers who perform any future construction projects at the site. Additionally, future residents are included as a worst-case scenario, to evaluate unrestricted future site use. Future receptors could be exposed to surface and subsurface soil if future construction at the site results in re-working the soil, and exposing the subsurface soil. Exposure routes for future exposure to the surface and subsurface soil are the same as those for current surface soil, incidental ingestion of and dermal contact with the soil, and inhalation of volatile and particulate emissions from the soil.

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Potable water supplies for MCB CamLej and the surrounding residential area are provided by water supply wells that pump groundwater from the Castle Hayne aquifer; therefore, there is no current exposure to shallow groundwater at the CJCA. The groundwater use patterns are already established for the Base and area around the CJCA, thus use of shallow groundwater from CJCA for industrial or residential purposes is unlikely. Additionally, the surficial aquifer at MCB CamLej is not suitable for potable water use due to high dissolved solids, hardness and fluctuating water levels that negatively affect water yields. However, state and federal governing policies assume that underground fresh water resources are potable, and should be maintained as such; therefore, a potable use scenario was evaluated in this risk assessment. It was conservatively assumed if future residential development of the site occurs the residents could potentially use the groundwater as a potable water supply. The residents would be exposed through ingestion, dermal contact while bathing, and inhalation of VOCs while showering. Additionally, due to the groundwater depth (from 4 to 16 ft bgs), construction workers could be exposed to the groundwater through dermal contact and inhalation of VOCs from an open excavation during construction activities.

Vapor intrusion from groundwater (or soil) to indoor air is not considered a significant exposure pathway for the CJCA. Minimal amounts of VOCs were detected in the groundwater and soil.

6.2 Human Health Risk-Based Screening and Risk Ratio Evaluation Methodology

The HHRS was conducted in three steps using a risk ratio technique (Navy, 2000). If COPCs were identified after Step 1, the COPCs were evaluated in Step 2. If COPCs were identified after Step 2, the COPCs were evaluated in Step 3. The three-step screening process is described below:

6.2.1 Step 1

The maximum detected analyte concentrations for each medium were compared to EPA RSLs, other human health risk screening levels (if appropriate), and twice the Base background (for inorganics in soil and groundwater). RSLs based on noncarcinogenic effects were divided by 10 to account for exposure to multiple constituents (i.e., were adjusted to a hazard quotient [HQ] of 0.1, from the HQ of 1.0 used on the RSL table). RSLs based on carcinogenic endpoints were used as presented in the RSL table, and are based on a carcinogenic risk of 1×10^{-6} .

The soil data were compared to residential soil RSLs. Residential RSLs are more conservative (i.e., lower) than industrial soil RSLs and are therefore protective of all potential receptors (e.g., residents, industrial workers, construction workers).

The groundwater data were compared to Tap Water RSLs. Groundwater data were also compared to MCLs and the NCGWQS; however, these comparisons were not used to identify the groundwater COPCs to carry forward to Step 2.

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If the maximum detected concentration in soil or groundwater exceeded the appropriate screening value and background concentration, the screening level risk evaluation proceeded to Step 2.

In addition to comparing the detected concentrations to the screening levels, the detection limits for non-detected analytes were compared to the screening levels. Non-detected analytes with detection limits exceeding the screening level were not identified as COPCs to carry forward to Step 2, but were discussed below to evaluate the potential for underestimating the total risks.

6.2.2 Step 2

For analytes identified as COPCs in Step 1, a corresponding risk level was calculated using the following equation:

The concentration is the maximum detected concentration (the same concentration that was used in Step 1). The acceptable risk level is 1 for noncarcinogens and 10-6 for carcinogens. RSLs for noncarcinogenic effects were not adjusted by 10 as was done in Step 1, they are used as presented in the RSL table.

All of the corresponding risk levels for each analyte within a media were summed to calculate the cumulative corresponding hazard index (HI) (for noncarcinogens) and cumulative corresponding carcinogenic risk (for carcinogens). A cumulative corresponding HI was also calculated for each target organ/effect. If the cumulative corresponding HI for a target organ/effect is greater than 0.5, or the cumulative corresponding carcinogenic risk is greater than 5×10^{-5} , the analytes contributing to these values are retained as COPCs and carried forward to Step 3.

6.2.3 Step 3

A corresponding risk level was calculated as discussed above for Step 2; however, the 95 percent upper confidence limit (UCL) was used in place of the maximum detected concentration, if more than five samples were available for that media, to obtain a more site-specific risk ratio. If the cumulative corresponding HI by target organ/effect is greater than 0.5, or the cumulative corresponding carcinogenic risk is greater than 5×10^{-5} , then constituents contributing to these values are considered COPCs.

ProUCL Version 4.00.04 (EPA, 2009a) was used to test the data distribution and calculate 95 percent UCL used for the Step 3 risk ratio calculations.

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6.3 Human Health Risk Screening Results

The HHRS (comparison to risk-based criteria and background levels, Step 1) and risk ratio evaluation (Steps 2 and 3) were performed for UXO-20, Site 15, Site 17, and Site 85 surface soil, combined surface and subsurface soil, and groundwater.

6.3.1 UXO-20

Surface Soil Risk Screening

Tables 2.1 and 2.1a, **Appendix E**, present the risk-based screening and risk ratio evaluation for surface soil. As shown on Table 2.1 in **Appendix E**, arsenic was identified as a COPC. Based on Step 2 of the screening process (Table 2.1a, **Appendix E**), arsenic was eliminated as a COPC; therefore, exposure to surface soil at UXO-20 would not pose any unacceptable risks, and further evaluation of surface soil based on human health risks is not necessary.

Combined Surface and Subsurface Soil Risk Screening

The risk-based screening and risk ratio evaluation for combined surface and subsurface soil data are presented in Tables 2.2 through 2.2b of **Appendix E**. As shown on Table 2.2, **Appendix E**, arsenic exceeded the first step of the screening and was identified as a COPC for evaluation in Step 2. Based on Step 2 (Table 2.2a, **Appendix E**), arsenic was identified as a COPC. Step 3 (Table 2.2b, **Appendix E**) eliminated arsenic as a COPC. Exposure to surface and subsurface soil at UXO-20 would not pose any unacceptable risks, and further evaluation of UXO-20 combined surface and subsurface soil based on human health risks is not necessary.

Groundwater Risk Screening

Tables 2.3 through 2.3b, **Appendix E**, present the risk-based screening and risk ratio evaluation for the groundwater. As shown on Table 2.3 in **Appendix E**, arsenic and lead were identified as COPCs. Based on Step 2 of the screening process (Table 2.3a, **Appendix E**), arsenic was identified as a COPC. Lead was eliminated as a COPC because the mean concentration of lead, used in the EPA's Integrated Exposure Uptake Biokinetic (IEUBK) model, is below the screening level. This indicates exposure to lead would not be a risk to residential receptors. Step 3 (Table 2.3b, **Appendix E**) did not eliminate arsenic as a COPC. Therefore, exposure to groundwater could result in an unacceptable risk to human receptors. However, arsenic was only detected in 12 of the 37 samples, and arsenic exceeded background concentrations in only two samples. Therefore, the arsenic may not be associated with site-related activities, but may be associated with background conditions at the base.

Non-detected Analytes

Only one metal, antimony, which was not detected in groundwater, had detection limits above the screening level. All of the other metals analyzed for in groundwater and soil samples were detected.

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6.3.2 IR Site 15

Surface Soil Risk Screening

Tables 2.4 through 2.4b, **Appendix E**, present the risk-based screening and risk ratio evaluation for surface soil. As shown on Table 2.4 in **Appendix E**, three SVOCs [chrysene, dibenz(a,h)anthracene, and indeno(1,2,3-cd)pyrene], Aroclor-1254, and four metals (aluminum, arsenic, chromium, and iron) were identified as COPCs. The concentration of two of the SVOCs [chrysene and indeno(1,2,3-dc)pyrene] did not exceed the screening level, however they were identified as COPCs following EPA Region 4 risk assessment guidance (EPA, 2000), another chemical, dibenz(a,h)anthracene, from the same chemical class (carcinogenic polycyclic aromatic hydrocarbon) was identified as a COPC. Based on Step 2 of the screening process (Table 2.4a, **Appendix E**), the three polycyclic aromatic hydrocarbon (PAHs), Aroclor-1254, and two of the metals (arsenic and chromium) were identified as COPCs. Step 3 eliminated all of the COPCs, therefore, exposure to surface soil would not pose any unacceptable risks, and further evaluation of Site 15 surface soil based on human health risks is not necessary.

Surface and Subsurface Soil Risk Screening

The risk-based screening and risk ratio evaluation for surface and subsurface soil data are presented in Tables 2.5 through 2.5b of **Appendix E**. As shown on Table 2.5 in **Appendix E**, three SVOCs [chrysene, dibenz(a,h)anthracene, and indeno(1,2,3-cd)pyrene], Aroclor-1254, and seven metals (aluminum, arsenic, chromium, cobalt, iron, lead, and manganese) were identified as COPCs. The concentration of two of the SVOCs [chrysene and indeno(1,2,3dc)pyrene] did not exceed the screening level; however they were identified as COPCs following EPA Region 4 risk assessment guidance (EPA, 2000), another chemical, dibenz(a,h)anthracene, from the same chemical class (carcinogenic PAH) was identified as a COPC. Based on Step 2 of the screening process (Table 2.5a, Appendix E), the three PAHs, Aroclor-1254, and four of the metals (arsenic, chromium, iron, and lead) were identified as COPCs. Lead was eliminated as a COPC because the mean concentration of lead, used in the IEUBK model, is below the screening level. This indicates exposure to lead would not be a risk to residential receptors. Step 3 eliminated the remaining COPCs; therefore, exposure to surface and subsurface soil would not pose any unacceptable risks, and further evaluation of Site 15 surface and subsurface soil based on human health risks is not necessary.

Groundwater Risk Screening

Tables 2.6 through 2.6b, **Appendix E**, present the risk-based screening and risk ratio evaluation for the groundwater. As shown on Table 2.6 in **Appendix E**, chromium, cobalt, iron, and manganese were identified as COPCs. Based on Step 2 of the screening process (Table 2.6a, **Appendix I**), chromium and iron were retained as COPCs. Chromium and iron could not be eliminated as COPCs in Step 3 (Table 2.3b, **Appendix E**). Therefore, exposure to groundwater could result in an unacceptable risk to human receptors associated with exposure to chromium and iron.

Chromium is the only contributor to the carcinogenic risk. Chromium was detected in groundwater samples collected from two of the five temporary monitoring wells. Only the maximum detected concentration exceeded twice the Base background. In the absence of chromium speciation information, the tap water RSL for hexavalent chromium, the more

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toxic (and carcinogenic) form of chromium, was used as the screening value for total chromium. The use of hexavalent chromium for comparison to total chromium is extremely conservative because the presence of trivalent chromium is strongly favored in natural waters and because the concentrations of constituents known to reduce hexavalent chromium to trivalent chromium generally far outweigh the concentrations of the few constituents known to oxidize trivalent chromium to hexavalent chromium. Furthermore, once reduced, trivalent chromium is very stable in aquatic environments and highly unlikely to oxidize to hexavalent chromium. Thus, chromium in groundwater is more likely to be in its trivalent form than its hexavalent form (Fendorf and Zasoski, 1992; Milacic and Stupar, 1995; Weaver and Hochella, 2003). The maximum detected concentration of total chromium in the groundwater is below the tap water RSL for trivalent chromium. Additionally, prior to including the New Jersey EPA oral cancer slope factor (CSF) for hexavalent chromium in the RSL table, the groundwater RSL for hexavalent chromium was over three-orders of magnitude higher than the value on the current RSL table. It should also be noted that there is some uncertainty associated with the hexavalent chromium oral CSF, and RSL, as the value is from New Jersey EPA, and has not been included in EPA's Integrated Risk Information System (IRIS) database.

The only contributor to the non-carcinogenic hazard is iron. The maximum detected concentration of iron equals the tap water RSL. The 95 percent UCL concentration of iron is below the EPA Tap Water RSL. The conservative screening level HHRS indicated that potable use of the groundwater could result in an HI of 0.7 associated with the iron. Additionally, iron is an essential nutrient for human health. Therefore, it is unlikely there would be any adverse effects associated with exposure to the iron in Site 15 groundwater.

Non-detected Analytes

Six SVOCs (benzo(a)pyrene, benzo(a)anthracene, benzo(b)flouranthene, bis(2-chloroethyl)ether, hexachlorobenzene, and n-nitroso-di-n-propylamine) and one VOC (1,2-dibromo-3-chloropropane) that were not detected in soil, and had detection limits above the screening levels. However, in general, the detection limits for these analytes in surface and subsurface soil were only slightly above the screening level (were within one order of magnitude of the non-carcinogenic adjusted RSL).

As shown on Table 2.6 in **Appendix E** 20 VOCs and 29 SVOCs were not detected in the groundwater but had detection limits above the screening level. However, due to the limited amount of VOCs and SVOCs detected in the groundwater, it is not expected that they are present in the groundwater, and if they are, it is likely they would be below levels of potential concern for human health because the majority of the detection limits were within an order of magnitude of the RSL or MCL. There were also six metals (antimony, cadmium, lead, selenium, silver, and vanadium) not detected in groundwater with a detection limit above the screening level. The detection limits of these metals were only slightly (within an order of magnitude) above the screening levels.

6.3.3 Site 17

Surface Soil Risk Screening

Tables 2.7 and 2.7a, **Appendix** E, present the risk-based screening and risk ratio evaluation for surface soil. As shown on Table 2.7 in **Appendix** E, three metals (arsenic, chromium, and iron) were identified as COPCs. Based on Step 2 of the screening process (Table 2.7a,

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Appendix E), none of these metals were identified as COPCs. Therefore, exposure to surface soil would not pose any unacceptable risks, and further evaluation of Site 17 surface soil based on human health risks is not necessary.

Combined Surface and Subsurface Soil Risk Screening

The risk-based screening and risk ratio evaluation for surface and subsurface soil data are presented in Tables 2.8 through 2.8b of **Appendix E**. As shown on Table 2.8 in **Appendix E**, five metals (aluminum, arsenic, chromium, iron, and vanadium) were identified as COPCs. Based on Step 2 of the screening process (Table 2.8a, **Appendix E**), arsenic and chromium were identified as COPCs. Step 3 did not eliminate either arsenic or chromium from consideration as COPCs. Chromium is the main contributor to the potential carcinogenic risk associated with the subsurface soil, and the only COPC wih a cancer risk above 5x10-5. Elimination of chromium as a COPC would also result in elimination of arsenic as a COPC, because it doesn't contribute significantly (above 5x10-5) to the cumulative calculated risk.

The soil samples collected at Site 17 were analyzed for total chromium, and in the absence of chromium speciation data, it was assumed that hexavalent chromium contributed to the concentrations. Therefore, hexavalent chromium, the more toxic (and carcinogenic) form of chromium, was used as the screening value for total chromium. In order to determine the concentrations of hexavalent and trivalent chromium, additional subsurface soil samples were collected from sample locations IR17-SB01 through IR17-SB05 in July 2010. The samples were submitted for laboratory analysis of total and hexavalent chromium. Trivalent chromium concentrations were determined by subtracting the hexavalent chromium concentrations from the total chromium concentrations. The hexavalent and trivalent chromium concentrations were screened against their respective RSLs, as shown on Table 2.9 of Appendix E. Step 1 of the screening process eliminated trivalent chromium as a COPC. Based on Step 2 of the screening process (Table 2.9a, Appendix E) hexavalent chromium was eliminated as a COPC. The elimination of chromium as a COPC also eliminated arsenic as a COPC; therefore exposure to Site 17 soil would not result in an unacceptable risk to human receptors. Further evaluation of soil at Site 17 based on human health risks is not necessary.

Groundwater Risk Screening

Tables 2.10 and 2.10a, **Appendix E**, present the risk-based screening and risk ratio evaluation for the groundwater. As shown on Table 2.10 in **Appendix E**, chloroform was identified as a COPC. Based on Step 2 of the screening process (Table 2.10a, **Appendix E**), chloroform was not identified as a COPC. Therefore, exposure to Site 17 groundwater would not result in an acceptable risk to human receptors and further evaluation of groundwater at Site 17 based on human health is not necessary.

Non-detected Analytes

Three SVOCs (benzo(a)pyrene, bis(2-chloroethyl)ether, and dibenz(a,h)anthracene) and one VOC (1,2-dibromo-3-chloropropane) were not detected in soil that had detection limits above the screening level. However, in general, the detection limits for these analytes in surface and subsurface soil were only slightly above the screening level (were within one order of magnitude of the non-carcinogenic adjusted RSL). As shown on Table 2.9 in **Appendix E** 20 VOCs and 29 SVOCs were not detected in the groundwater but had detection limits above the screening level. However, due to the limited VOCs and SVOCs

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detected in the groundwater, it is not expected that they are present in the groundwater, and if they are, it is likely they would be below levels of potential concern for human health because the majority of the detection limits were within an order of magnitude of the RSL or MCL.

6.3.4 Site 85

Surface Soil Risk Screening

Tables 2.11 through 2.11b, **Appendix E**, present the risk-based screening and risk ratio evaluation for surface soil. As shown on Table 2.11 in **Appendix E**, nine metals (antimony, arsenic, chromium, cobalt, iron, lead, manganese, mercury, and zinc) were identified as COPCs. Based on Step 2 of the screening process (Table 2.11a, **Appendix E**), two metals, lead and manganese, were identified as COPCs. Lead was eliminated as a COPC because the mean concentration of lead, used in the IEUBK model, is below the screening level. This indicates exposure to lead would not be a risk to residential receptors. Step 3 of the screening process identified manganese as a COPC. Manganese was only detected in one of the 13 surface soil samples at a concentration above the RSL. This detected concentration was 10 times higher than the next highest detection. Therefore, the potential risk associated with manganese is associated with only one sample. Additionally, manganese is an essential human nutrient.

Surface and Subsurface Soil Risk Screening

The risk-based screening and risk ratio evaluation for surface and subsurface soil data are presented in Tables 2.12 through 2.12b of **Appendix E**. As shown on Table 2.12 in **Appendix E**, ten metals (aluminum, antimony, arsenic, chromium, cobalt, iron, lead, manganese, mercury, and zinc) were identified as COPCs. Based on Step 2 of the screening process (Table 2.12a, **Appendix E**), five metals (aluminum, arsenic, chromium, lead, and manganese) were identified as COPCs. Lead was eliminated as a COPC because the mean concentration of lead, the lead concentration used in the IEUBK model to evaluate exposure to lead, is below the screening level, indicating exposure to lead would not be a risk to residential receptors. Based on Step 3 aluminum and manganese were identified as COPCs.

Manganese was only detected in 1 of the 23 soil samples at a concentration above the RSL. This detected concentration was 10 times higher than the next highest detection. Therefore, the potential risk associated with manganese is associated with only one sample. Additionally, manganese is an essential human nutrient. Aluminum was identified as a COPC because it affects the same target organ as manganese. Aluminum alone does not contribute a hazard above the acceptable screening level HI of 0.5.

Groundwater Risk Screening

Tables 2.13 and 2.13b, **Appendix E**, present the risk-based screening and risk ratio evaluation for the groundwater. As shown on Table 2.13 in **Appendix E**, two VOCs (chloroform and methylene chloride) and four metals (aluminum, chromium, iron, and lead), were identified as COPCs. Based on Step 2 of the screening process (Table 2.13a, **Appendix E**), the chloroform, methylene chloride, chromium, and lead were identified as COPCs. Lead was eliminated as a COPC because the mean concentration of lead, the lead concentration used in the IEUBK model to evaluate exposure to lead, is below the screening

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level indicating exposure to lead would not be a risk to residential receptors. After Step 3, chloroform, methylene chloride, and chromium were identified as COPCs.

Chloroform and methylene chloride are common laboratory contaminants and may not be associated with site use. Chromium was detected in groundwater samples collected from two of the nine temporary monitoring wells. Only the maximum detected concentration exceeded twice the Base background. In the absence of chromium speciation information, the tap water RSL for hexavalent chromium, the more toxic (and carcinogenic) form of chromium, was used as the screening value for total chromium. The use of hexavalent chromium for comparison to total chromium is extremely conservative because the presence of trivalent chromium is strongly favored in natural waters and because the concentrations of constituents known to reduce hexavalent chromium to trivalent chromium generally far outweigh the concentrations of the few constituents known to oxidize trivalent chromium to hexavalent chromium. Furthermore, once reduced, trivalent chromium is very stable in aquatic environments and highly unlikely to oxidize to hexavalent chromium. Therefore, chromium in groundwater is more likely to be in its trivalent form than its hexavalent form (Fendorf and Zasoski, 1992; Milacic and Stupar, 1995; Weaver and Hochella, 2003). The maximum detected concentration of total chromium in the groundwater is below the tap water RSL for trivalent chromium. Additionally, prior to including the New Jersey EPA oral CSF for hexavalent chromium in the table, the groundwater RSL for hexavalent chromium was more than three orders of magnitude higher than the value on the current RSL table. It also needs to be noted that there is some uncertainty associated with the hexavalent chromium oral CSF, and RSL, because the value is from New Jersey EPA and has not been included in EPA's Integrated Risk Information System (IRIS) database.

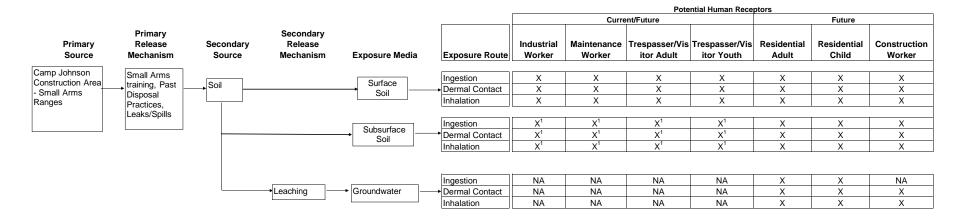
Non-detected Analytes

Three SVOCs (benzo(a)pyrene, bis(2-chloroethyl)ether, and dibenz(a,h)anthracene) that were not detected in soil that had detection limits above the screening level. However, in general, the detection limits for these analytes in surface and subsurface soil were only slightly above the screening level (were within one order of magnitude of the non-carcinogenic adjusted RSL). As shown on Table 2.13 in **Appendix E**, there were 20 VOCs and 31 SVOCs in groundwater that were not detected but had detection limits above the screening level. However, due to the limited amount of VOCs and SVOCs detected in the groundwater, it is not expected that they are present in the groundwater, and if they are, it is likely they would be below levels of potential concern for human health because the majority of the detection limits were within an order of magnitude of the RSL or MCL. There were also two metals (antimony and vanadium) not detected in groundwater with a detection limit above the screening level. The detection limits of these metals were only slightly above the screening levels.

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FIGURE 6-1 Conceptual Site Model for HHRA Preliminary Assessment/Site Inspection Camp Johnson Construction Area

MCB CamLej, North Carolina



¹Current receptor populations may be exposed to surface soil. Future receptor populations may be exposed to surface and subsurface soil.

Created by: D. Stannard Checked by: B. Propst

NA - Not Applicable or pathway is incomplete

X - Potentially complete exposure pathways

Preliminary Ecological Risk Screening

An ecological risk screening (ERS) was conducted for four sites at Camp Johnson – UXO-20, Site 15, Site 17, and Site 85. Analytical data from surface soil, subsurface soil, and groundwater samples were screened against benchmarks intended to be protective of ecological receptors. All data considered in the screening were collected during the 2009 sampling events, except for some historical data that were included as part of the screening for Site 15.

7.1 Site Ecological Setting and Available Data

The following section provides information on site ecological setting and available data for UXO-20, IR Site 15, IR Site 17, and IR Site 85. No jurisdictional wetlands have been identified within the CJCA boundary.

7.1.1 UXO-20

The area of investigation is approximately 90 percent vegetated with trees and thick undergrowth.

Data from the following samples were considered in the screen:

- 214 surface soil samples (plus 31 duplicates) from 0 to 1 ft bgs.
- 67 subsurface soil samples (plus 7 duplicates) collected from 2 to 7 ft bgs
- 37 groundwater samples (plus 3 duplicates). Dissolved metals data were available for a subset of the wells. Groundwater from UXO-20 is assumed to discharge to marine waters.

7.1.2 IR Site 15

Site 15 consists of an open area surrounded by vegetation, and encompasses approximately 24 acres. However, historical investigations indicate the former disposal area covers only about 2 acres in the eastern portion of the site. Site 15 is predominately vegetated with trees and thick undergrowth. One area of bare disturbed ground is present in the northeastern portion of the site.

Data from the following samples were considered in the screen:

- Seven surface soil samples were collected in 2006 (SWMU46 samples).
- 10 surface samples (plus one duplicate) collected in 2009 from 0 to 1 ft bgs.
- 10 subsurface soil samples (plus one duplicate) collected from 0 to 5 ft bgs in 2009.
- 5 groundwater samples (plus 1 duplicate) collected in 2009. Dissolved metals data were available for all of the wells. Groundwater from Site 15 is assumed to discharge to marine waters.

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7.1.3 IR Site 17

Site 17 consists of an area of approximately 5 acres covered by concrete debris, located along the shoreline of the New River.

Data from the following samples were considered in the screen:

- 5 surface soil samples (plus one duplicate) were collected from 0 to 1 ft bgs.
- 5 subsurface soil samples (plus one duplicate) collected from 0 to 5 ft bgs
- 2 groundwater samples (plus one duplicate) Dissolved metals data were also available. Groundwater from Site 17 is assumed to discharge to marine waters.

7.1.4 IR Site 85

Site 85 encompasses approximately 4.5 acres in the Camp Johnson support operations area of MCB CamLej. Site 85 is predominately vegetated with trees and thick undergrowth.

Data from the following samples were considered in the screen:

- 13 surface soil samples (plus two duplicates) collected from 0 to 1 ft bgs
- 10 subsurface soil samples (no duplicates) collected from 0 to 5 ft bgs
- 9 groundwater samples (plus one duplicate). Dissolved metals data were available for a subset of the wells. Groundwater from Site 85 is assumed to discharge to marine waters.

7.2 Screening Methodology

For each medium (surface soil, subsurface soil, and groundwater), the maximum and average concentrations are presented in **Tables F-1** through **F-12** along with representative ecological screening values (ESVs) intended to be protective of ecological receptors. HQs were calculated by dividing these exposure concentrations by the ESVs. It should be noted that ESVs for inorganics in water are generally based on dissolved concentrations and comparing them to total metals concentrations is conservative and may over-represent risk.

For locations with multiple data points (i.e., a parent and duplicate sample were available), data were reduced to the value of the greatest detected concentration or highest detection limit if there was no detection. Where average concentrations are reported, one half of the detection limit was used for non-detects as the representative concentration when determining the average.

For soil, the EPA ecological soil screening levels (EPA, 2009b) were preferentially selected over Region 4 values (EPA, 2001). When no ecological soil screening level was available for a constituent, the Region 4 value was selected.

A selection hierarchy was also applied to groundwater. The national recommended water quality criteria (NRWQC) were preferentially selected over the Region 4 value (EPA, 2009c). However, when no NRWQC was available for a constituent, the Region 4 value was selected as the ESV for that constituent. It is assumed that groundwater discharges to marine waters; therefore, marine ESVs were selected.

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A base background study for inorganics was conducted at MCB CamLej in June and July 2000 (Baker, 2001). As part of the ERS, surface soil, subsurface soil, and groundwater background concentrations were compared to site-specific media concentrations. Additional lines of evidence in the evaluation include the frequency of detection, frequency of exceedance, magnitude of exceedance, and identification of potential laboratory contaminants.

Calcium, magnesium, potassium, and sodium were evaluated but not considered as COPCs in the ERS. Each is considered a macronutrient (Whitehead, 2000).

7.3 Screening Results

This section addresses constituents that were detected and had available ESVs based on the selection hierarchy discussed above for the four evaluated sites. Constituents not detected are not expected to pose a risk to ecological receptors. The ERS results are presented in **Appendix F**.

7.3.1 UXO-20

Surface Soil

Three detected constituents had concentrations in excess of ESVs (antimony, lead, and zinc) (**Table F-1**). The maximum concentration of antimony exceeded twice the mean background but was within the Base background range for surface soils at MCB CamLej and is considered to be representative of background.

Lead and zinc concentrations exceeded the ESVs and were above the background ranges for surface soil. However, lead only exceeded the Region 4 screening level in 1 of 214 samples and the background concentration in 2 of 214 samples, suggesting that lead is likely consistent with background and is not considered to pose a risk to ecological receptors. While zinc had an HQ above one, the frequency (3/214) and magnitude of exceedance (HQ = 2.5) were low and the mean HQ was less than 1.0. Consequently, inorganics in surface soil at the former range fans are not expected to pose risk to ecological receptors.

Subsurface Soil

Of the detected constituents, arsenic, lead, and zinc had concentrations in excess of the ESVs (**Table F-2**). The maximum concentration of lead exceeded twice the Base background but was within the background range for surface soils at MCB CamLej and is considered to be representative of background.

Arsenic and zinc concentrations exceeded the ESVs with respective maximum-based HQs of 1.38 and 1.07. Because the frequency and magnitude of exceedance was low for both analytes, risk is considered low. Consequently, inorganics are not expected to pose a significant risk to ecological receptors.

Groundwater

Of the total inorganics, three detected constituents had concentrations in excess of the selected ESVs including copper, lead, and zinc (**Table F-3**). While the maximum concentrations of each analyte exceeded twice the mean background, these concentrations were within the background range for groundwater at MCB CamLej and are considered to

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be representative of background. Consequently, none of these constituents are expected to pose a significant risk.

Of the dissolved inorganics, copper and zinc were the only analytes with a maximum concentration greater than the ESV. The maximum concentrations, however, were within the respective background ranges for shallow groundwater. Consequently, dissolved inorganics are not expected to pose a significant risk to ecological receptors.

7.3.2 IR Site 15

Surface Soil

Seven detected organic constituents and nine inorganic constituents had concentrations in excess of ESVs (**Table F-4**). Of these organics, all analytes, with the exception of chloroform and Aroclor-1254, had low frequencies and/or magnitudes of exceedance. While chloroform had an HQ of 5.2, it is a common lab contaminant (California Department of Toxic Substances Control [CDTSC], 2006) and only a limited number of VOCs were detected. Aroclor-1254 had a low frequency of detection (1/15) but had an elevated HQ of 18.

Of the inorganics, aluminum, antimony, iron, and vanadium exceeded twice the Base background; however, the concentrations were within the respective background ranges. Cadmium, copper, lead (based on the Region 4 ESV), and zinc were all found to have low frequencies of detection and/or magnitudes of exceedance and risk from these analytes is considered low. Mercury had a maximum-based HQ of 5.1 and a mean-based HQ of less than 1.0.

While ecological risks are generally low for inorganic analytes, the majority of predicted risk is from one sample location (IR15-SS01). This sample location is co-located with the maximum Aroclor-1254 detection. Because this area is not well characterized, additional investigation to delineate the nature and extent of inorganics and PCBs in this area is recommended.

Subsurface Soil

Of the detected constituents, 3 pesticides (4, 4'-DDD, 4, 4'-DDE, and 4, 4'-DDT) and 12 inorganics had concentrations in excess of the ESVs (**Table F-5**). The pesticides were all elevated in IR15-SB10 and had HQs ranging from 2.19 to 8.54. Because sampling in this area is limited and HQs were elevated, additional investigation is recommended to evaluate these pesticides (particularly, 4,4'-DDE, and 4,4'-DDT).

Of the inorganics, aluminum and vanadium had maximum concentrations that were consistent with MCB CamLej background levels and are not considered to pose a significant risk to ecological receptors. Cadmium, chromium, copper, manganese, and thallium all had low frequencies and/or magnitudes of exceedances. Additionally, the majority of these analytes had mean-based HQs less than 1.0. Antimony, iron, lead, and zinc all had maximum-based HQs and mean-based HQs above 1.0. Although inorganics in subsurface soil are not expected to pose significant risks to ecological receptors, additional investigation is recommended for inorganics in subsurface soils at Site 15. It should also be noted that the majority of subsurface contamination is collocated with surface contamination found in IR15-SS01.

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Groundwater

Of the detected inorganics in groundwater, only copper and nickel, had concentrations in excess of the selected ESVs (**Table F-6**). However, while both analytes exceed twice the Base background, they are both within the respective background range based on total and dissolved concentrations. Consequently, neither of these constituents is expected to pose a significant risk.

7.3.3 IR Site 17

Surface Soil

Six detected constituents had concentrations in excess of ESVs including one organic (chloroform) and five inorganics (aluminum, iron, lead, selenium, and vanadium) (**Table F-7**). While chloroform had an elevated HQ, it is a common lab contaminant (CDTSC, 2006) and was the only VOC detected in excess of the ESV.

The maximum concentrations of all five inorganics were twice the Base background but were within the respective background ranges for surface soils at MCB CamLej and are considered to be representative of background.

Subsurface Soil

Of the detected constituents, only one organic (chloroform) and seven inorganics had concentrations in excess of the ESVs (**Table F-8**). Aluminum had a maximum concentration (20,000 mg/kg) that was greater than the background range (260 to 16,800 mg/kg) and a maximum- and mean-based HQ above 1.0. Antimony had a low magnitude of exceedance and was greater than the ESV in only one of five samples. Chromium, lead, and selenium had maximum-based HQs greater than 1.0, but mean-based HQs less than 1.0. Additionally, these analytes each had a low magnitude of exceedance based on the maximum detection and lead had a maximum-based HQ of less than 1.0 when using the Region 4 screening value of 50 mg/kg. Iron and vanadium both had maximum- and mean-based HQs greater than 1.0. While aluminum, iron, and vanadium all had elevated HQs, these analytes are not thought to be the result of site-related activities because Site 17 was a surface dumping site. Surface soils at this site are not significantly affected and it is unlikely that inorganics in subsurface soils would be elevated as a result of surface disposal. Additionally, the area was a disposal site for concrete debris and is unlikely to have contributed to metals contamination in soils.

Groundwater

Of the detected inorganics in groundwater, only copper and nickel, had concentrations in excess of the selected ESVs (**Table F-9**). However, while both analytes exceed twice the Base background, they are both within the respective background range based on total and dissolved concentrations. Consequently, neither of these constituents is expected to pose a significant risk.

7.3.4 IR Site 85

Surface Soil

Fifteen detected constituents had concentrations in excess of ESVs, including 4 organics (bis[2-ethylhexyl]phthalate; 4,4′-DDE; 4,4′-DDT, and Aroclor-1254) and 11 inorganics (**Table F-10**). Of these, the organic analytes were found to have a low frequency of

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occurrence and/or magnitude of exceedance and mean HQs less than 1.0. Additionally, phthalates are known to be common laboratory contaminants (CDTSC, 2006).

Of the inorganics, the maximum concentrations of aluminum, iron, and vanadium exceeded twice the mean background but were within the background range for surface soils at MCB CamLej and are considered to be representative of background. The remaining inorganics (antimony, cadmium, copper, lead, manganese, mercury, thallium, and zinc) had high magnitudes of exceedance and were well outside the respective background ranges. Consequently, these inorganics are considered to pose potential risk to ecological receptors and additional evaluation is recommended.

Subsurface Soil

Of the detected constituents, two organics (chloroform and 4,4'-DDE) and five inorganics (aluminum, iron, mercury, vanadium, and zinc) had concentrations in excess of the ESVs (**Table F-11**). Both organic analytes had a low magnitude of exceedance and a mean-based HQ less than 1.0. Additionally, chloroform is known to be a common laboratory contaminant (CDTSC, 2006).

For inorganics, the iron and vanadium maximum concentrations were consistent with MCB CamLej background levels and are not considered to pose a significant risk to ecological receptors. The maximum concentration of aluminum exceeded twice the Base background but was within the background range for subsurface soils at MCB CamLej and is considered to be representative of background. Mercury and zinc both had a low magnitude of exceedance (maximum-based HQs less than 2.0) and mean HQs less than 1.0. Additionally, the maximum mercury concentration (0.17 mg/kg) only slightly exceeds the maximum background value (0.16 mg/kg). Consequently, an ecological risk from analytes in subsurface soil is considered negligible.

Groundwater

Six detected constituents had concentrations in excess of the selected ESVs, including 4,4'-DDD, copper, lead, nickel, silver, and zinc (**Table F-12**). The magnitude of exceedance for 4, 4'-DDD was low and it was detected in only 1 of 9 samples. It is unlikely that concentrations of pesticides in groundwater are related to battery disposal that occurred at the site but rather the result of application of pesticides at the Base.

The maximum concentration of zinc is within the MCB CamLej background range for groundwater. While total concentrations of lead, silver, and zinc were above background, they were consistent with background based on dissolved data. Additionally, while copper (total and dissolved) and nickel (total and dissolved) concentrations in groundwater were above respective background ranges, concentrations in subsurface soils at the site were consistent with background, suggesting that elevated concentrations of inorganics in groundwater are not site-related. Consequently, none of these constituents are expected to pose a significant risk.

7.4 Supplemental Evaluation

This section addresses constituents that were detected but did not have ESVs based on the selection hierarchy discussed above. Supplemental values were selected as available from *Update to Guidance for Conducting Ecological Risk Assessments at Remediation Sites in Texas*

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(Texas Commission of Environmental Quality, 2006), screening quick reference tables (Buchman, 2008), and other publications, as needed. These comparisons are discussed along with other lines of evidences, such as frequency of detection and relationship to the range of background concentrations. It should be noted that supplemental ESVs were not needed for the former range fans and these areas are not discussed in this section.

7.4.1 IR Site 15

Surface Soil

In surface soil, 2-butanone, acetone, and methyl acetate were the only detected organic constituents lacking an ESV. Inorganic analytes lacking ESVs were all macronutrients which are not considered to be COPCs. The maximum concentrations of 2-butanone and acetone were less than the supplemental ESVs. These analytes are not expected to pose a significant risk to ecological receptors. A supplemental ESV was not available for methyl acetate.

Subsurface Soil

In subsurface soil, 2-butanone, 2-hexanone, 4-methyl 2-pentanone, acetone, carbon disulfide, and methyl acetate were the only detected organic constituents lacking an ESV. Inorganic analytes lacking ESVs were all macronutrients, which are not considered to be COPCs. Supplemental ESVs were available for all analytes except methyl acetate, and the maximum concentrations of these analytes were less than the supplemental ESVs.

Groundwater

In groundwater, isopropylbenzene and styrene were detected but lacked ESVs. The concentrations for these two constituents were below supplemental ESVs, and the risk to ecological receptors is considered negligible. While ESVs were lacking for several inorganic constituents, these constituents were considered to be (1) consistent with background, (2) within the respective background range, or (3) a macronutrient. Consequently, none of these constituents are considered to pose significant risk.

7.4.2 IR Site 17

Surface Soil

In surface soil, 2-butanone, acetone, chloromethane, and methyl acetate were the only detected organic constituents lacking an ESV. Inorganic analytes lacking ESVs were all macronutrients, which are not considered to be COPCs. The maximum concentrations of 2-butanone, acetone, and chloromethane were less than the supplemental ESVs. These analytes are not expected to pose a significant risk to ecological receptors. A supplemental ESV was not available for methyl acetate.

Subsurface Soil

In subsurface soil, 1,2-dibromo-3-chloropropane, 2-butanone, acetone, and methyl acetate were the only detected organic constituents lacking an ESV. Inorganic analytes lacking ESVs were all macronutrients, which are not considered to be COPCs. The maximum concentrations of 2-butanone and acetone were less than the supplemental ESVs. These analytes are not expected to pose a significant risk to ecological receptors. Supplemental ESVs were not available for methyl acetate and 1,2-dibromo-3-chloropropane.

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Groundwater

In groundwater, caprolactam and several inorganics were detected but lacked ESVs. A supplemental ESV was not available for caprolactam. While ESVs were lacking for several inorganic constituents, these constituents were considered to be (1) consistent with background, (2) within the respective background range, or (3) a macronutrient. Consequently, none of these constituents are considered to pose significant risk.

7.4.3 IR Site 85

Surface Soil

In surface soil, 2-butanone, acetone, and methyl acetate were the only detected organic constituents lacking an ESV. Inorganic analytes lacking ESVs were all macronutrients, which are not considered to be COPCs. The maximum concentrations of 2-butanone and acetone were less than the supplemental ESVs. These analytes are not expected to pose a significant risk to ecological receptors. A supplemental ESV was not available for methyl acetate.

Subsurface Soil

In subsurface soil, 1,2-dibromo-3-chloropropane, 2-butanone, 4-methyl 2-pentanone, acetone, isopropylbenzene, and methyl acetate were the only detected organic constituents lacking ESVs. Inorganic analytes lacking ESVs were all macronutrients, which are not considered to be COPCs. Supplemental ESVs were available for all analytes except isopropylbenzene and methyl acetate. The maximum concentrations of analytes with supplemental ESVs were less than the supplemental ESVs. These analytes are not expected to pose a significant risk to ecological receptors.

Groundwater

In groundwater, ESVs were lacking for several detected inorganic constituents; however, these constituents were considered to be (1) consistent with background, (2) within the respective background range, or (3) a macronutrient. Consequently, none of these constituents are considered to pose significant risk.

7.5 Summary

Potential ecological risks at UXO-20 and Site 17 are considered to be low, and the resulting risk to ecological receptors is considered insignificant. Additional investigation of these sites is not recommended.

At Site 15, Aroclor-1254 and mercury in surface soil and 4,4'-DDE, 4,4'-DDT, antimony, lead, and zinc in subsurface soil were detected at elevated concentrations in one area (IR15-SS01). Because this area is not well characterized, additional investigation to delineate the nature and extent of inorganics, pesticides, and PCBs is recommended. Although inorganics in subsurface soil are not expected to pose significant risks to ecological receptors, further evaluation of inorganics in subsurface soil is recommended.

At Site 85, antimony, cadmium, copper, lead, manganese, mercury, thallium, and zinc in surface soil had high magnitudes of exceedance and were well outside the respective background ranges. Consequently, these inorganics are considered to pose potential risk to ecological receptors and additional evaluation is recommended.

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SECTION 8

Conclusions and Recommendations

This section presents the conclusions and recommendations based on the results of the investigative activities conducted during this PA/SI.

8.1 Conclusions

8.1.1 UXO-20

Surface and Subsurface Soil

Arsenic was the most prevalent metal detected in surface and subsurface soils across UXO-20, with concentrations exceeding regulatory criteria and twice the Base background concentration. No other analyzed metals were detected at concentrations exceeding regulatory screening criteria and twice the Base background.

Groundwater

Two metals, arsenic and lead, were detected at concentrations exceeding regulatory screening criteria and twice the Base background in groundwater samples collected at UXO-20.

HHRS and ERS

Initially, arsenic in groundwater was identified as a COPC in the HHRS. However, arsenic was detected in only 12 of 37 groundwater samples. Additionally, arsenic exceeded twice the mean background concentration (5.77 μ g/L) in only 2 of 37 samples (9.4J μ g/L and 6.1J μ g/L). This suggests that the detected concentrations of arsenic in soil from UXO-20 likely associated with naturally occurring levels and not a result of former small arms range activities. Therefore, arsenic was eliminated as a COPC in the HHRS.

Based on the evaluation of available soil and groundwater data, results of the human health and ecological risk-based screenings indicate that exposure to soil and groundwater within UXO-20 would not result in any potentially unacceptable risks to human health or ecological receptors.

8.1.2 IR Site 15

Surface Soil

VOCs or SVOCs were not detected at concentrations exceeding regulatory criteria in surface soil samples collected at Site 15. One PCB, aroclor-1254, was detected above regulatory criteria at one surface soil sample location. One pesticide, dieldrin, was detected above regulatory criteria at two surface soil sample locations. Four metals were detected at concentrations exceeding regulatory criteria and twice the Base background in surface soil samples at IR 15, including aluminum, arsenic, chromium, and iron.

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Subsurface Soil

VOCs, SVOCs, or PCBs were not detected at concentrations exceeding regulatory criteria in subsurface soil samples collected at Site 15. One pesticide, dieldrin, was detected above regulatory criteria at one subsurface soil sample location. Five metals were detected at concentrations exceeding regulatory criteria and twice the Base background in subsurface soil samples, including arsenic, chromium, iron, lead, and manganese.

Groundwater

VOCs, SVOCs, OCPs, or PCBs were not detected at concentrations exceeding regulatory criteria in groundwater samples collected at Site 15. Three metals were detected at concentrations exceeding regulatory criteria and twice the Base background in groundwater samples, including, chromium, iron, and manganese. Two dissolved metals, iron and manganese, were detected at concentrations exceeding regulatory criteria and twice the Base background.

Test Pits

Eight test pits (IR15-TP01 through IR15-TP08) were excavated to depths ranging from 2 to 7 ft bgs to assess the boundaries of the former disposal area (**Figure 4-6**). Based on the observations made during the test pit excavations, the boundaries of the former disposal area appear to have been adequately delineated.

HHRS and ERS

Based on the analytical data for surface and subsurface soil samples collected at Site 15, constituents detected do not present an unacceptable risk to human health. However, chromium was identified as a COPC in groundwater. Exposure to groundwater at Site 15 may present an unacceptable risk to human health and further assessment is recommended.

Based on the analytical data collected from Site 15, exposure to PCBs and metals in surface soil and pesticides in subsurface soils present a potentially unacceptable risk to ecological receptors and further assessment is recommended. No unacceptable risks to ecological receptors were identified in groundwater at Site 15.

8.1.3 IR Site 17

Surface Soil

VOCs, SVOCs, OCPs, or PCBs were not detected at concentrations exceeding regulatory criteria in surface soil samples collected at Site 17. Three metals were detected at concentrations exceeding both twice the Base background and regulatory criteria in surface soil samples, including arsenic, chromium, and iron.

Subsurface Soil

One VOC, 1,2-dibromo-3-chloropropane, was detected above regulatory criteria in one subsurface soil sample location at Site 17. No SVOCs, OCPs, or PCBs were detected above regulatory criteria in the subsurface soil samples. Four metals (aluminum, arsenic, chromium, and iron) were detected at concentrations exceeding regulatory criteria and twice the Base background in subsurface soil samples.

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Groundwater

One VOC, chloroform was detected at a concentration exceeding regulatory criteria in the groundwater samples collected at Site 17. No SVOCs, OCPs, or PCBs were detected in the groundwater samples at concentrations exceeding regulatory criteria. No metals were detected in the groundwater samples at concentrations exceeding both Base background and regulatory criteria.

HHRS and ERS

Based on the evaluation of available soil and groundwater data, results of the human health and ecological risk-based screenings indicate that exposure to soil and groundwater within Site 17 would not result in any potentially unacceptable risks to human health or ecological receptors.

8.1.4 IR Site 85

Surface Soil

No VOCs, SVOCs, or PCBs were detected at concentrations exceeding regulatory criteria in surface soil samples collected at Site 85. One pesticide, dieldrin, was detected above regulatory criteria at two surface soil sample locations. Ten metals (antimony, arsenic, cadmium, chromium, iron, lead, manganese, mercury, thallium, and zinc) were detected at concentrations exceeding regulatory criteria and twice the Base background in surface soil samples.

Subsurface Soil

One VOC, 1,2-dibromo-3-chloropropane, was detected above regulatory criteria in one subsurface soil sample location at Site 85. No SVOCs, pesticides, or PCBs were detected above regulatory criteria in the subsurface soil samples. Two metals (aluminum and arsenic) were detected at concentrations exceeding regulatory criteria and Base background in subsurface soil samples.

Groundwater

One VOC, methylene chloride, was detected in the groundwater samples collected are IR 85. No SVOCs, pesticides, or PCBs were detected in the groundwater samples at concentrations exceeding regulatory criteria. Three metals (aluminum, iron, and chromium) were detected in the groundwater samples collected at IR 85 at concentrations exceeding both Base background and regulatory criteria in the groundwater samples.

Batteries

Lead and mercury were detected in the battery sample at concentrations exceeding the EPA maximum toxicity values. The batteries observed at Site 85 were removed during the test pit excavations.

HHRS and ERS

Based on the analytical data collected at Site 85, exposure to groundwater may present an unacceptable risk to human health from chromium, based on the screening value for hexavalent chromium. Unacceptable human health risks were not identified for surface and subsurface soils.

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Based on surface soil samples collected at Site 85, exposure to metals presents a potentially unacceptable risk to ecological receptors. Unacceptable risks to populations of ecological receptors were not identified from subsurface soil and groundwater.

8.2 Summary

Based on the analytical results for surface soil, subsurface soil, and groundwater samples collected from UXO-20 and the former IR Sites and the HRS and ERS summarized above, the following conclusions are made:

- No risks to human health or ecological receptors were identified at Site 17.
- No risks to human health or ecological receptors were identified at UXO-20 and no small
 arms-related items associated with the former ranges were found during the field
 investigation. The absence of contamination at UXO-20 suggests that it is unlikely that
 water bodies, including the New River, would be impacted as a result of the former
 small arms range activities.
- The presence of chromium in groundwater poses a potentially unacceptable risk to human health based on potable use of groundwater in the vicinity of Sites 15 and 85.
- The presence of metals, pesticides, and PCBs in soil poses a potentially unacceptable risk to ecological receptors in the vicinity of Site 15.
- The presence of metals in soil poses a potentially unacceptable risk to ecological receptors in the vicinity of Site 85.
- Debris remains in place within the boundaries of the Site 15 former disposal area and batteries may be present in the Site 85 vicinity.

8.3 Recommendations

Based on the conclusions summarized above, the following recommendations are made:

- Closeout and removal of UXO-20 from the MMRP based on the lack of contamination resulting from former small arms range activities.
- Collection of additional soil and groundwater samples from Site 15 and Site 85 based on the potentially unacceptable risks to human and ecological receptors. The additional investigations planned and presence of debris at Sites 15 and 85 should be considered during MILCON planning in these areas.

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SECTION 9

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Acronyms and Abbreviations

ASR Archives Search Report

BAR Browning automatic rifle

CERCLA Comprehensive Environmental Response, Compensation, and Liability Act

CTO Contract Task Order

CSI Confirmatory Site Investigation

°F degrees Fahrenheit

EE/CA Engineering Evaluation/Cost Analysis

EPA United States Environmental Protection Agency

ft feet

IR Installation Restoration
IRM Interim Remedial Measures

MC munitions constituents

MCCSSS Marine Corps Combat Service Support Schools

MCB Marine Corps Base

MEC munitions and explosives of concern

MILCON military construction
MOS military occupation skills
MRP Munitions Response Program

msl mean sea level

NARA National Archives and Records Administration

NAVFAC Naval Facilities Engineering Command

NCGWQS North Carolina Groundwater Quality Standards

NC Hwy North Carolina Highway

NFA DD No Further Action Decision Document

PA Preliminary Assessment
PCB polychlorinated biphenyl
PRG preliminary remediation goal

RCRA Resource Conservation and Recovery Act of 1976

RFA RCRA Facility Assessment RFI RCRA Facility Investigation RI Remedial Investigation

SI Site Inspection SSL Soil Screening Level

SVOC semivolatile organic compound SWMU Solid Waste Management Unit TCRA time critical removal action

US United States

USACE United States Army Corps of Engineers

UXO unexploded ordnance

VOC volatile organic compound

WWII World War II

Introduction, Purpose, and Scope

The United States Marine Corps and the Naval Facilities Engineering Command (NAVFAC) are conducting an investigation of former ranges and Installation Restoration (IR) sites within the boundaries of a proposed military construction (MILCON) project in the area known as Camp Johnson at Marine Corps Base (MCB) Camp. The proposed MILCON area encompasses approximately 240 acres within Camp Johnson (**Figure A-1**). A munitions response program (MRP) Preliminary Assessment (PA)/Site Inspection (SI) is being conducted on a 35-acre area within the MILCON area within former range boundaries as shown in **Figure 1-1** in the *Site Specific Work Plan Addendum Preliminary Assessment/Site Inspection Camp Johnson MILCON Area* (CH2M HILL, 2009).

The results of the PA/SI will determine if any impacts to soil and groundwater have occurred at Camp Johnson due to past range activities. To support site investigation efforts, this archival records search report has been prepared to provide a narrative of the historical activities at Camp Johnson that may have resulted in environmental contamination with munitions and explosives of concern (MEC) or munitions constituents (MC).

The archival records search is an investigative review of existing information about the site and its surrounding area, with an emphasis on obtaining information from personnel and historical resources that might indicate a potentially hazardous release to the environment. The scope of this report includes:

- A review of existing information about the site (including MCB Camp Lejeune maps, drawings, and reports, and interviews with MCB Camp Lejeune personnel)
- Collection of additional information about the site

A complete listing of resources identified and investigated for this report is provided in **Attachment 1**. **Attachment 1** also includes details concerning the reviews of the historical information from the Marine Corps Library at Quantico, National Archives and Records Administration (NARA) map and text files, and MCB Camp Lejeune base files.

Site Information

2.1 Facility Information

MCB Camp Lejeune is located on the Atlantic coast in Jacksonville, North Carolina. The city of Jacksonville in Onslow County is the principal support community for the base. MCB Camp Lejeune occupies 153,000 acres including more than 450 miles of roads, approximately 6,800 buildings and facilities, and 14 miles of beach on the Atlantic Ocean for amphibious training. Approximately 14,000 acres of land have been developed for administrative, maintenance, logistics, and personnel support facilities. Originally established in 1941, the base is home to several tenant commands including II Marine Expeditionary Force, 2nd Marine Division, and 2nd Marine Logistics Group, two Navy commands, one Coast Guard command, and several Marine Corps formal schools. MCB Camp Lejeune supports a total population of approximately 150,000 people, including active-duty military and dependents, retirees, and civilian employees (Global Security, 2008).

2.1.1 Climate and Meteorology

The climate at MCB Camp Lejeune is characterized by mild winters and hot humid summers. Winters are usually short and mild with occasional and short-duration cold periods. Summers are long, hot, and humid. Average annual net precipitation is approximately 50 inches. Ambient air temperatures generally range from 33 to 53 degrees Fahrenheit (°F) in the winter months, and 71°F to 88°F during the summer months. Winds are generally south-southwesterly in the summer, and north-northwesterly in the winter (Water and Air Research, 1983). The hurricane season in the area surrounding MCB Camp Lejeune begins on June 1 and continues through November 30. Storms of nontropical origins such as frontal passages, local thunderstorms, and tornadoes are more frequent and can occur year-round.

2.1.2 Topography, Geology, and Hydrology

The land surface at MCB Camp Lejeune has been alternately exposed and submerged over time by water and marine deposits from an ancient inland sea. These deposits were laid down to form the weakly dissected alluvial plane. The deposits are mostly sands layered with clay and marine shells. Elevations range from sea level at the waterways to 72 feet (ft) above mean sea level (msl) between the New River and United States (U.S.) Route 17. MCB Camp Lejeune consists of both broad, level flatlands and gently rolling hills.

Southeastern North Carolina and MCB Camp Lejeune are within the Tidewater region of the Atlantic Coastal Plain Physiographic Province. The Tidewater region is generally swampy and of low relief, with elevations averaging about 20 ft above msl. The MCB Camp Lejeune area is underlain by an eastward thickening sediment wedge of marine and nonmarine origins ranging in age from early Cretaceous to Holocene. The eastward thickening wedge of sediment begins at the western boundary of Atlantic Coastal Plain

physiographic province, known as the Fall Line, and dips southeastward towards the coast. Along the coastline, several thousands of feet of interlayered, unconsolidated sediment are present consisting of gravel, sand, silt, clay deposits, calcareous clays, shell beds, sandstone, and limestone that were deposited over pre-Cretaceous crystalline basement rock. These sediment units are often distinguished by minor amounts of detrital carbonate shells and secondary minerals such as glauconite, siderite, and chlorite (Cardinell, Berg, and Lloyd, 1993).

Fluctuations in sea level on a subsiding continental margin in marine and near-shore environments are believed to have controlled Historical Coastal Plain sedimentation and deposition (Winner and Coble, 1989). Confining units associated with specific aquifers within the Coastal Plain region are composed of less-permeable beds of clay and silt. Within the MCB Camp Lejeune area, approximately 1,500 ft of a sedimentary sequence overlie the crystalline basement rock. This sedimentary sequence composes seven aquifers and their associated confining units including the Surficial, Castle Hayne, Beaufort, Peedee, Black Creek, and Upper and Lower Cape Fear aquifers (Cardinell, Berg, and Lloyd, 1993).

Interstream areas generally provide the recharge of aquifers within the Coastal Plain region. Recharge to the aquifers has been estimated to have a yearly range of 5 to 21 inches of rainfall (Heath, 1989). In general, natural discharge of groundwater from the Coastal Plain aquifer system is into streams, swamps, and lakes. Evapotranspiration from the soil zone and upward leakage through confining units into streams, estuaries, swamps, and even the ocean also contribute to groundwater discharge. The New River estuary serves as the principal discharge area for groundwater from the Castle Hayne aquifer within the vicinity of MCB Camp Lejeune (Harned, Lloyd, and Treece, 1989).

2.2 Ownership and Operational History

2.2.1 Camp Lejeune Ownership History

The history of the land now occupied by Camp Lejeune is documented primarily through land records and maps. Following the start of World War II (WW II), the War Department began purchasing tracts of land in 1941 from local residents to meet the need for an East Coast amphibious training facility. Prior to occupation by the Marine Corps, the land had been occupied by white and African-American communities and farms since the Colonial era. The land contained plantation houses, cabins, farm buildings, tobacco barns, stores, and various cemeteries (Global Security Website, 2008).

The initial land transferred to the government was acquired in 14 different transactions between April and October 1941 and totaled 173.8 square miles or 111,155 acres, of which there were 85,155 land acres and about 26,000 acres under water (Loftfield, 1981; Louis Berger Group, 2002). The individual tracts of land were grouped into various "areas" for consolidation. The facility was initially referred to as the Marine Barracks New River, which was changed to MCB Camp Lejeune in 1942 (Global Security Website, 2008).

The Camp Johnson MILCON area is located within Area A, which is bounded to the north and northeast by North Carolina Highway 24 (NC Hwy 24), to the south and southeast by Northeast Creek, and to the west by New River. Area A consists of 65 tracts of land acquired by the government in 1941 by area landowners. The Camp Johnson MILCON area overlaps

two full parcels (A38 and A47) and partially overlaps four parcels (A14, A32, A41, and A44) as shown in the 1941 Property Map for Area A (Bureau of Yards and Docks, 1941) supplied as **Attachment 2**.

2.2.2 Camp Johnson Operational History

The Camp Johnson MILCON area is located off Montford Landing Road within the Camp Johnson area of the Base. The site is located on Montford Landing Road and is bounded by U.S. Highway 17 by-pass to the north, the New River to the west, Wilson Road and Coolidge Road to the southwest, and an unnamed road to the north. Camp Johnson, formerly named Montford Point Camp, was the original training center for African-American Marines during the period of military segregation. Between 1941 and 1949, approximately 20,000 African-American Marines were trained at Montford Point. In 1949, the military was fully integrated and the area continued to be used for schools and training. Montford Point was renamed Camp Johnson in 1974. Camp Johnson currently houses the Marine Corps Combat Service Support Schools (MCCSSS), which serve as training facilities for various duties within the Marine Corps. The MCCSSS consists of four military occupation skills (MOS) schools, four tenant schools, and the Navy's Field Medical School. Approximately 10,000 students per year are trained at Camp Johnson (MCB Camp Lejeune Website, 2008).

Portions of the MILCON area are composed of two former ranges: the 1,000-inch range and the A-1 50-ft .22 caliber range. In addition, the site encompasses IR Site 15 (Solid Waste Management Unit [SWMU] 46) the Montford Point Dump Site, IR Site 17 (SWMU 47) the Montford Point Rip-Rap area, and IR Site 85 (SWMU 241) the Camp Johnson Battery Dump. **Figure A-1** shows the former range and IR Site boundaries. Site histories and previous investigations are discussed below.

Historical Site Use

A review of base maps showing existing conditions from 1945 to 2008 indicated that the Camp Johnson MILCON area has not contained any buildings with the exception of two pump houses and deep wells (M-243 and M-244) and tennis and racquetball courts, all of which first appear on the 1945 existing conditions map shown in **Figure A-2** (MCB Camp Lejeune, 1945). The pump houses and wells appear on all maps including 1979 but do not appear on the 2005 existing conditions map. Existing conditions maps from 1980 through 2004 are not available. The tennis and racquetball courts appear on all available existing conditions maps. In 1953, Hoover Road, on the east side of the Camp Johnson MILCON area, was extended toward Montford Landing Road, **Figure A-3**. Additionally, an unnamed road running perpendicular to Hoover Road appeared on the 1953 existing conditions map and all later maps.

The 1962 historical aerial (**Figure A-4**) shows the same roads appearing on the existing conditions maps as well as some additional small roads or paths that traverse the Camp Johnson MILCON area. The area is primarily wooded with a cleared area north of Coolidge Road and west of Wilson Road. A path running parallel to the unnamed road from **Figure A-3** corresponds to an obstacle course labeled S-M-257 on the 1964 existing conditions map (**Figure A-5**). A cleared area with no vegetation is shown south of the

unnamed road and Hoover Road intersection on the eastern side of the Camp Johnson MILCON area, which appears to correspond to IR Site 15, the Montford Point Dump Site.

Two additional pump houses (labeled as M-629 and M-630) appear on the 1979 existing conditions map along the obstacle course path (**Figure A-6**). The 1989 historical aerial photo (**Figure A-7**) shows the three roads that traverse the Camp Johnson MILCON area on the existing conditions maps (Hoover Road and the two unnamed roads perpendicular to it) as well as some additional small roads that are also found in **Figure A-1** and 2008 existing conditions (**Figure A-8**). The northern portion of the Camp Johnson MILCON area appears to be grassy rather than wooded like the majority of the MILCON area. There also appears to be a small cleared area with no vegetation in the northwest area between the two unnamed roads, which does not correspond with any known uses of the area.

Historical Range Review

A review of historical range overlay maps (Plates 1-22) from the *Draft Range Identification and Preliminary Range Assessment* (USACE, 2000) indicated that two ranges intersected the Camp Johnson MILCON Area that will be investigated in the PA/SI. The first range to appear in the Camp Johnson MILCON Area was the 1,000-Inch Range at Montford Point (1946, Plate 4) and identified in the *Final Archives Search Report: Range Identification and Preliminary Range Assessment* (USACE, 2001) as Archives Search Report (ASR) number 2.32. The A-1 50-ft .22 Caliber Range (ASR 2.87) appears in different locations (as shown on **Figure A-1**) on the following Plates: Plate 5 (1951), Plate 6 (1953), and Plate 8 (1954). The boundaries for these ranges are based on the range overlay maps (provided as **Figure A-9** for the 1,000-inch Range and **Figure A-10** for the A-1 50-ft .22 Caliber Range).

1,000-inch Range at Montford Point (ASR 2.32)

The 1,000-inch Range at Montford Point operated from 1946 to the mid-1950s. Camp Training Order Number 5-1946 identified this range as a Familiarization Range for .30 Cal Browning automatic rifle (BAR) (USACE, 2000). The range was used for small arms (Rifles from the M1 up to the BAR) (Richardson, 2008). The 1,000-inch Range appears on one range overlay map that indicates the firing position and direction of fire but does not give a fan or area that may be impacted by this range (**Figure A-9**). Due to the nature of small arms, unexploded ordnance (UXO) is not likely to be encountered; however, lead contamination in the impact berm may be present (Richardson, 2008).

A-1 50-ft .22 Caliber Range (ASR 2.87)

The Former A-1 .22 Caliber Range appears on three range overlay maps in 1951, 1953, and 1954 (**Figure A-10**). The shape and location of the range varies slightly and it is in a similar location as the 1,000-inch Range. The range was used as a small-arms firing range during the 1950s and is believed to have been inactive since 1957 (USACE, 2000). The name of the range suggests that .22 caliber weapons were used; however, available documentation does not specify the type of small arms. An excerpt on small-arms ammunition (USACE, 2000) is provided in **Attachment 3**. UXO is not likely to be encountered but lead contamination may be present in the impact berms (Richardson, 2008).

Previous Environmental Investigations

In addition to the two historical ranges in the Camp Johnson MILCON area, there are three IR Sites (15, 17, and 85) that have undergone environmental investigations. Figures and a more detailed history of each of these sites may also be found in the *Site Specific Work Plan Addendum, Preliminary Assessment/Site Inspection, Camp Johnson MILCON Area* (CH2M HILL, 2009).

Site 15 (SWMU 46)

Site 15, also known as SWMU 46, is the former Montford Point Dump. The site operated between 1946 and 1958 and was reportedly used to dispose sewage treatment sludge, litter, asphalt, and sand (CH2M HILL/Baker, 2005) .The disposal area is approximately 2 acres and consists of open areas surrounded by vegetation.

The Final Resource Conservation and Recovery Act of 1996 (RCRA) Facility Assessment (RFA) for Camp Lejeune (EnSafe, 1996) identified No Further Action was warranted at Site 15/SWMU 46. However, Baker conducted a Confirmatory Site Investigation (CSI) in 1997 and a Phase II CSI in 2002 at the site after it became evident that additional waste had been disposed at the site. The investigations included a geophysical survey to identify the location of the buried waste as well as soil and groundwater sampling. The results of the investigations indicated several metals were present in soils across the site. Lead was detected in one groundwater sample at a concentration above base background criteria and North Carolina Groundwater Quality Standards (NCGWQS). In addition, the geophysical survey indicated a significant anomaly consistent with a small landfill near the central portion of the investigation area. The boundaries of the landfill were not determined during the field events due to limitations to the geophysical survey (Baker, 2001 and Baker, 2002).

In 2004, Baker conducted a RCRA Facility Investigation (RFI) to further identify the waste locations and evaluate potential contamination. The RFI consisted of additional geophysical testing, test trenches, surface and subsurface soil samples, and sampling of one groundwater monitoring well. The trenches exposed landfill material such as glass, metal debris, ceramic, ash, and other burned debris (CH2M HILL and Baker, 2005).

The RFI concluded that surface soil had high metals content, particularly in soil mounds located in the southeast portion of the site. In addition, subsurface soil within the landfill trenches exhibited elevated concentrations of metals, semivolatile organic compounds (SVOCs), and pesticides with some contaminants exceeding regulatory criteria. Pesticide concentrations measured in subsurface soil samples collected from the landfill exceeded the base background levels, indicating the concentrations could be attributed to past disposal activities and not basewide pesticide use. One monitoring well was installed as part of the RFI. No metal constituents were detected in the groundwater sample collected from the well; therefore, no additional monitoring wells were installed. It was recommended that surface mounds and contaminated surface soil should be managed as RCRA waste, and the landfill waste within the disposal site should be managed as Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) waste as part of IR Site 15 (CH2M HILL and Baker, 2005).

In 2006, CH2M HILL conducted soil mound and surface soil sampling to analyze for volatile organic compounds (VOCs), SVOCs, pesticides, polychlorinated biphenyls (PCBs), and

RCRA metals. VOCs, SVOCs, and PCBs were either not detected or concentrations were lower than the screening criteria (North Carolina Soil Screening Levels [SSLs], United States Environmental Protection Agency [EPA] Region IX industrial preliminary remediation goals [PRGs], and base background for metals). Surface soil and mounds with pesticides and metals that exceeded screening criteria were identified for removal (CH2M HILL, 2006). An Interim Remedial Measures (IRM) implementation was completed in March 2007 at which time three soil mounds and five designated surface soil areas were excavated (Shaw, 2007). A total of 1,039 tons of soil were removed from the site and disposed at the MCB Camp Lejeune landfill.

Buried landfill debris and contaminated soil remain in the subsurface. The debris area has been delineated, although the waste depth is only estimated. Groundwater has not been fully characterized. Because of the high concentrations of pesticides in the subsurface soil, it is anticipated that pesticides may also be present in groundwater.

Site 17 (SWMU 47)

Site 17, also known as SWMU 47, contains inert concrete rip-rap along the shoreline of Montford Point. The site was originally evaluated during the Initial Assessment Study (Water and Air Research, 1983) at the Base. During the initial assessment, it was determined that the inert nature of the concrete found at Site 17 did not require further investigation.

Site 85 (SWMU 241)

Site 85, the Camp Johnson Battery Dump, encompasses approximately 4.5 acres in the Camp Johnson support operations area of the Base. Site 85 was used as a battery dump during the 1950s. In 1992, decomposed batteries, which were used in military communication equipment during the Korean era, were unearthed as a roadway was being widened. Military personnel using this area also discovered discarded charcoal canisters from old air purifying respirators. The discarded battery packs and charcoal canisters were observed in piles, randomly located throughout a 2-acre to 3-acre area (Baker, 1998).

A Pre-RI screening study was conducted at Site 85 from 1995 to 1998. Field activities included soil and groundwater sampling for metals. Analytical results indicated that soil near the battery disposal piles was contaminated by metals leaching from the batteries. A baseline risk assessment, completed as part of the Pre-RI, identified potential risks to current military personnel due to exposure to metals in surface soil. Potential risks to future child and adult residents were also identified due to exposure to surface soil and groundwater. As a result of the findings in the Pre-RI, it was recommended that an Engineering Evaluation/Cost Analysis (EE/CA) be completed to evaluate remedial alternatives for soil contamination at the site (Baker, 1998).

The EE/CA recommended removal of the soil and battery packs through a time critical removal action (TCRA) followed by re-evaluation of site groundwater. The TCRA was completed from October to December 1999, and included the excavation and removal of 158 tons of contaminated soil and debris (OHM, 2000).

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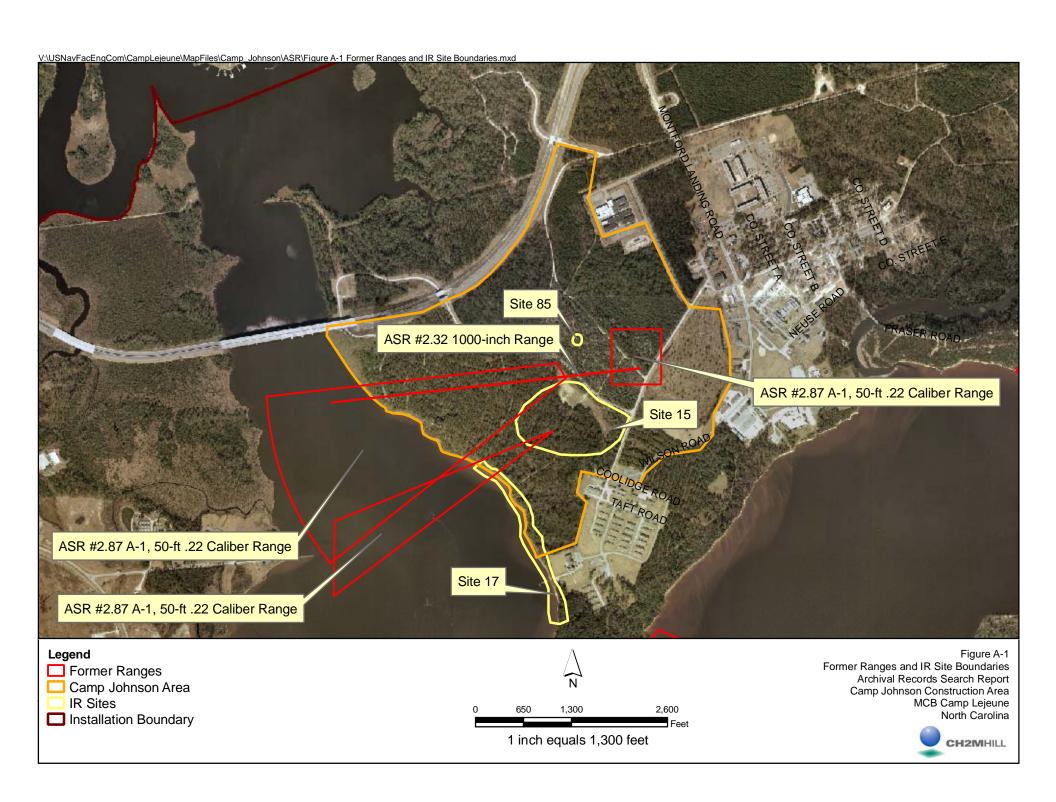
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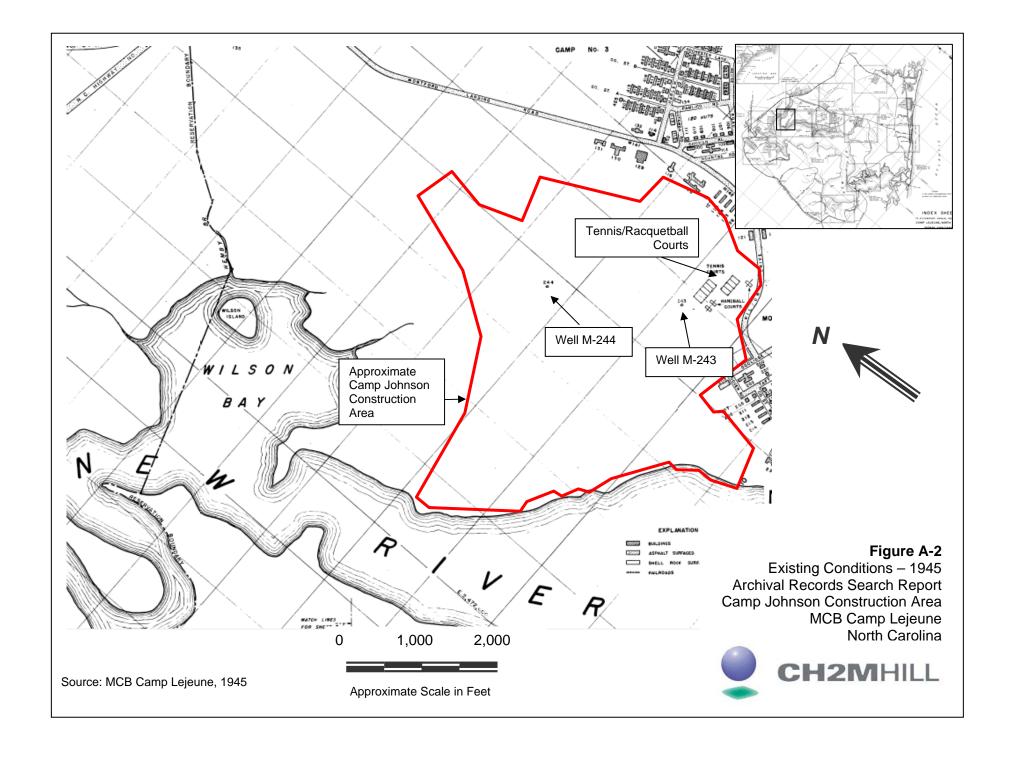
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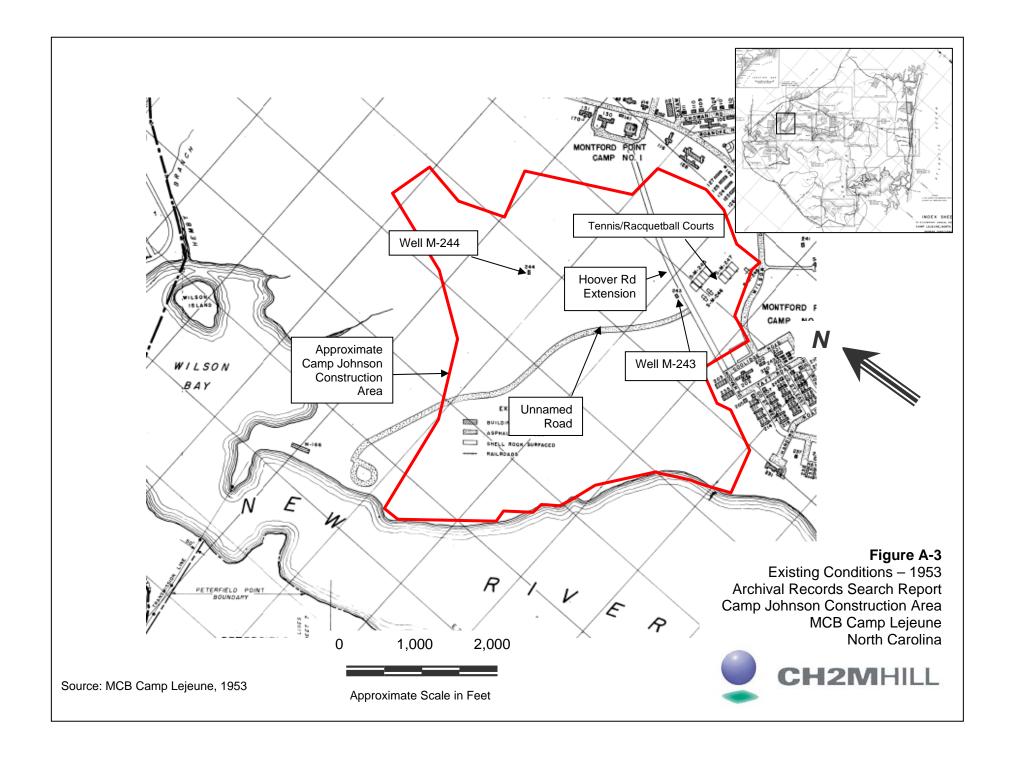
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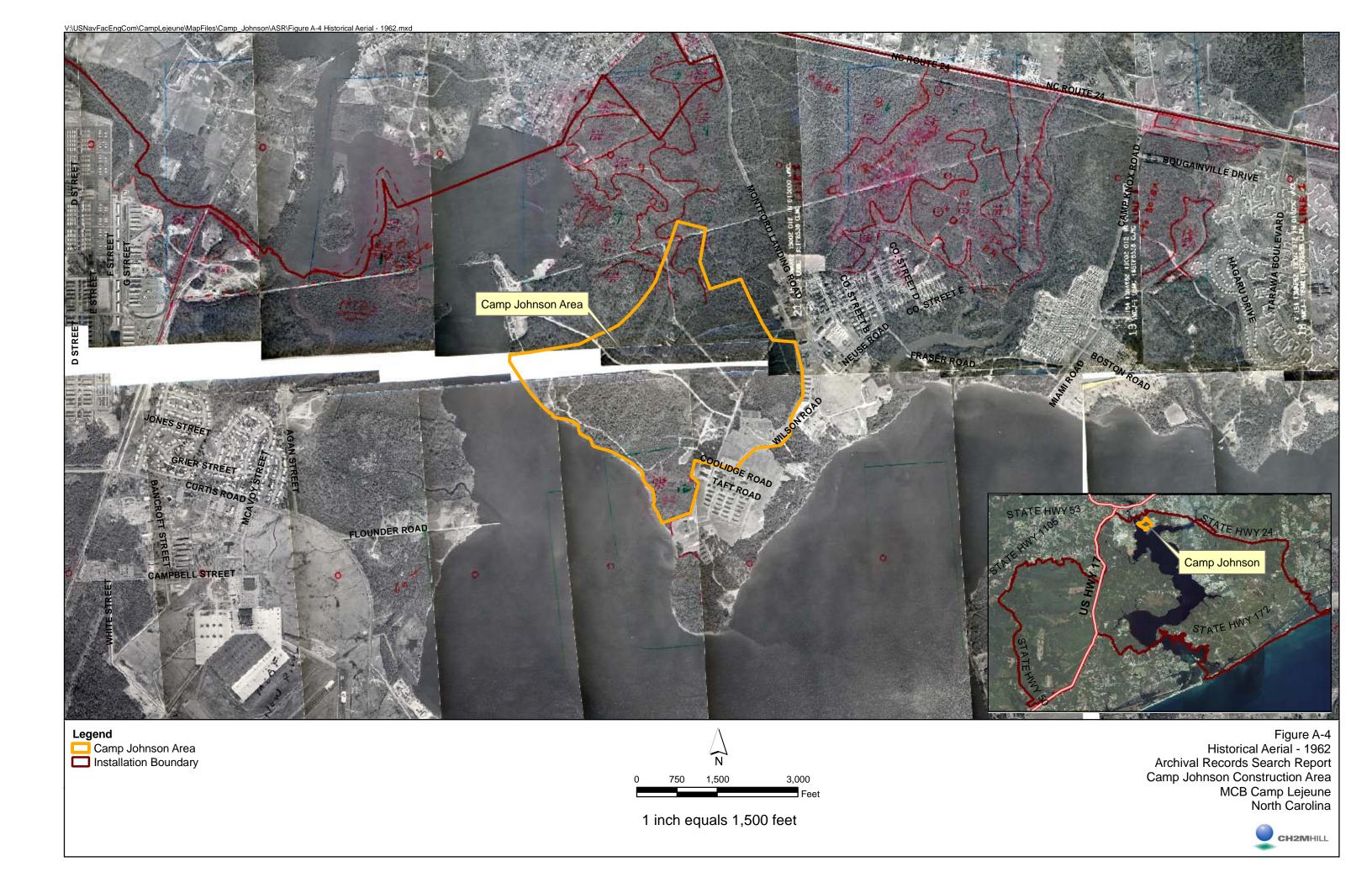
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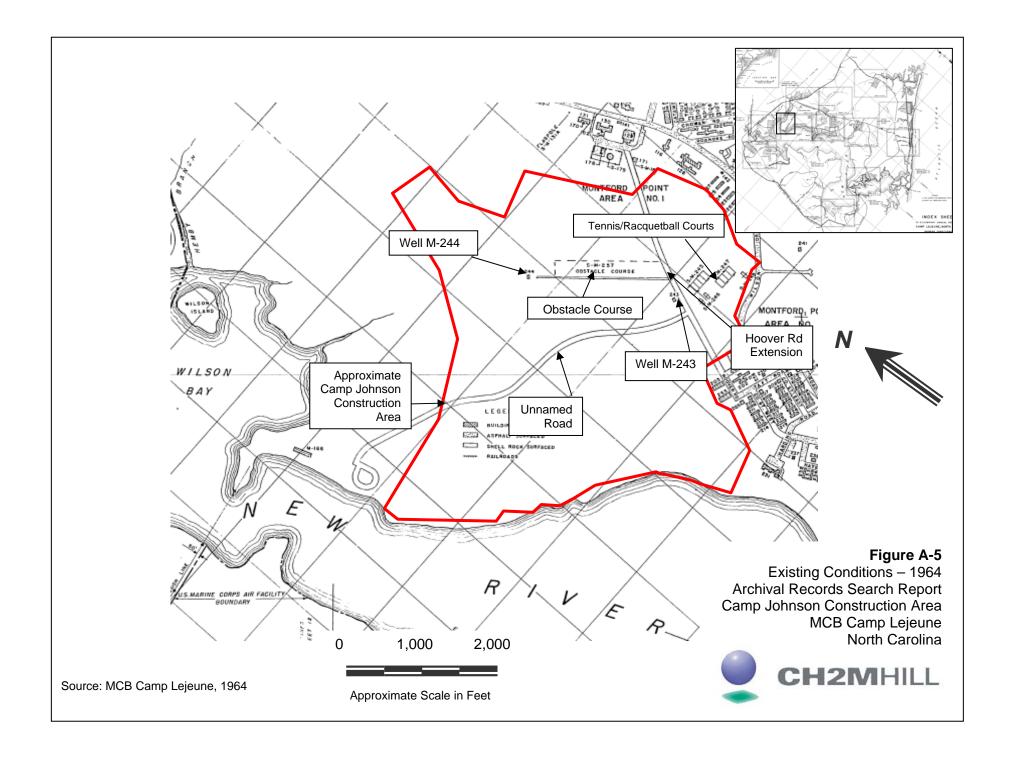
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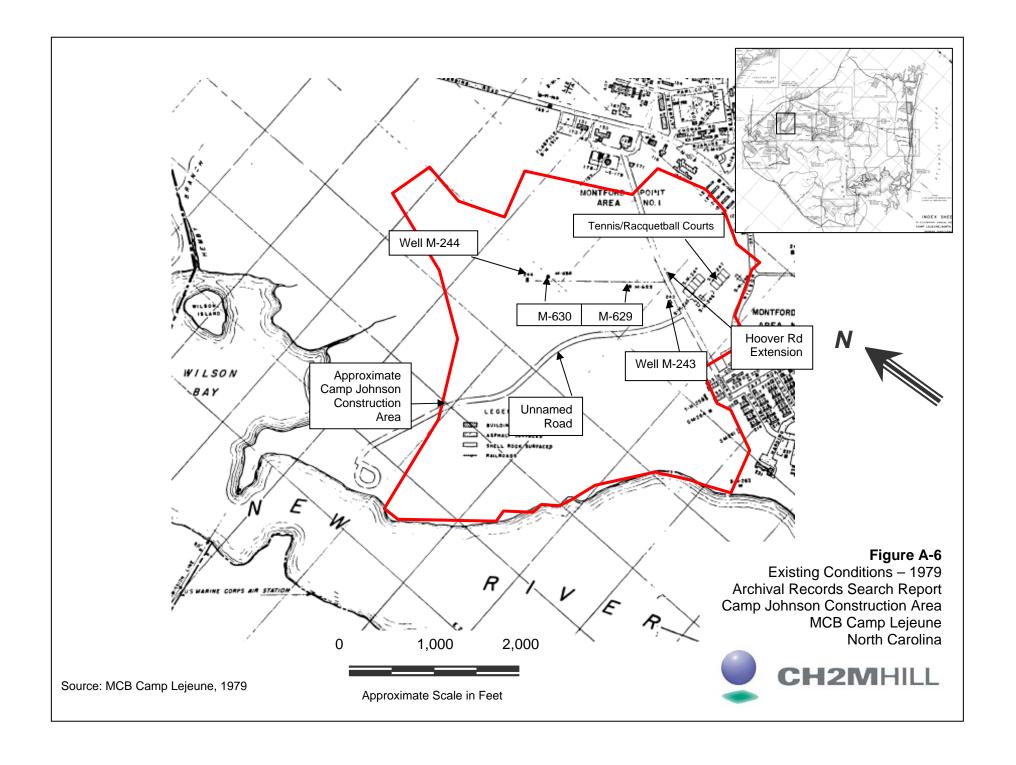


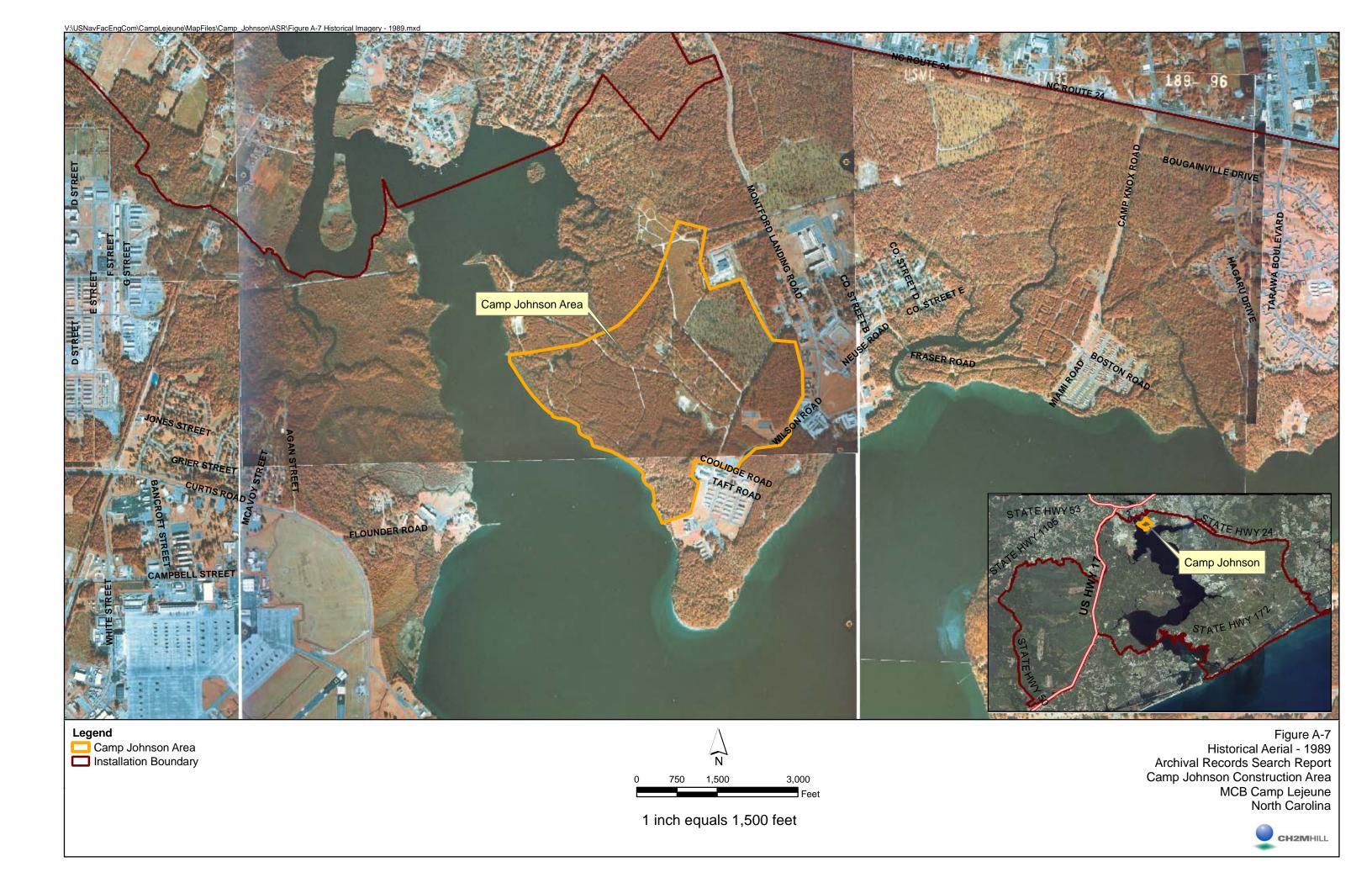


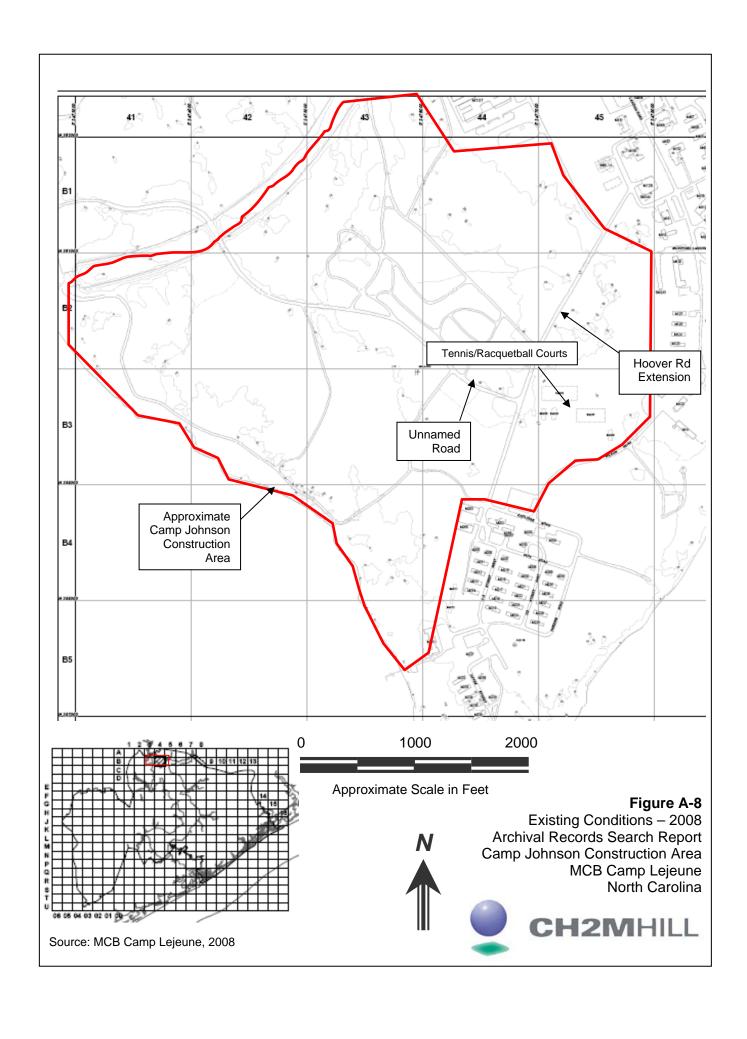


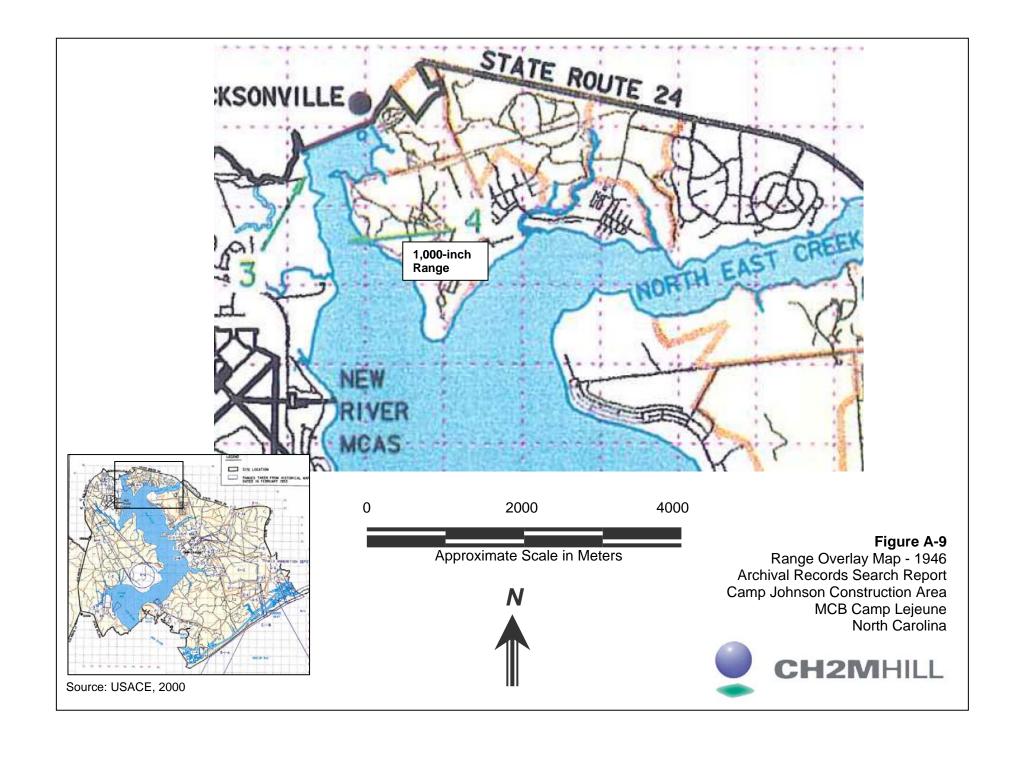


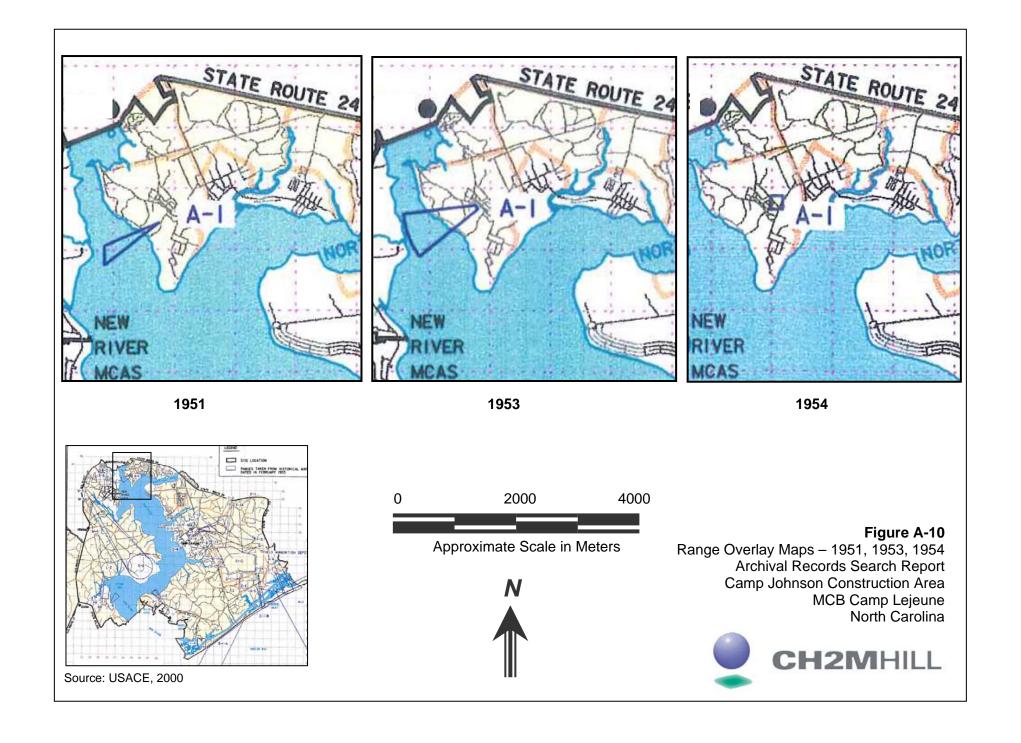














Resource Review Summary

The following table provides a summary of the specific references identified for review, interview, or contact for the archival report.

Resource	Actions Completed		
Quantico, Virginia, Marine Corps Library, Gray Research Center	Reviewed all available file folders related to Camp Lejeune – Made copies of relevant historic maps. No files to copy.		
US National Archives (NARA II) Historical Files	Reviewed text and drawing files from Text and Cartographic Divisions. Made copies of relevant files and maps.		
Deborah Edge/National Archives Text File	See US National Archives Files Review		
Camp Lejeune Technical Records files	Reviewed and copied all relevant documents related to historical land use for each site.		
Ca	mp Lejeune Personnel		
Linda Futrell/ Realty Specialist	Contacted and interviewed		
Dennis Dunham/ Technical Records	Contacted and interviewed		
Duane Richardson/ Base Range Safety Officer	Contacted and interviewed		

Marine Corp Library Review

Text Division

Contact: Gregory Cina

Site Visit: October 7, 2008

File review at Marine Corps Base, Quantico, Virginia, Gray Research Center, Marine Corps Archives and Special Collections.

Several historic maps were digitally copied; however, no pertinent text documents were obtained from the file review.

List of Documents Obtained from Marine Corp Library

- "Camp Lejeune, New River, North Carolina," August 1943.
- "Combat Training Chart, United States East Coast, North Carolina, Approaches to New River," December 26, 1987.
- "New River," 1972.
- "Jacksonville South Quadrangle," NW/4 New River 15' Quadrangle, USGS, 1952.
- "North Carolina, Approaches to New River," November 1950.

National Archives and Records Administration Review

Text Division

Contact: Ms. Deborah Edge, 301-837-1687 Site visits on September 15 - 18, 2008

Reviewed 12 boxes of files associated with the Marine Corps, 1939-1950

- Record Group 127 (USMC), Office of the Commandant, General Correspondence, January 1939-June 1950, 1275/70-800 (10/45-1/47) to 1275/70-727 (1/44-12/47), Box 218.
- Record Group 127 (USMC), Office of the Commandant, General Correspondence, January 1939-June 1950, 1275/70-800 (10/44-1/45) to 1275/70-800 (7/45-9/45), Box 219.
- Record Group 127 (USMC), Office of the Commandant, General Correspondence, January 1939-June 1950, 1275/70-800 (10/44-1/45) to 1275/70-800 (7/45-9/45), Box 220.
- Record Group 127 (USMC), Office of the Commandant, General Correspondence, January 1939-June 1950, 2295-10 Brooklyn to 2285-10 Camp Lejuene, Box 1570.
- Record Group 127 (USMC), Office of the Commandant, General Correspondence, January 1939-June 1950, 2295-10 Camp Lejuene to 2285-10 Camp Lejuene, Box 1571.
- Record Group 127 (USMC), Office of the Commandant, General Correspondence, January 1939-June 1950, 2295-10 Camp Lejuene to 2285-10 Camp Lejuene, Box 1572.
- Record Group 127 (USMC), Quartermaster, General Correspondence, January 1940, 215-3, Box 144.
- Record Group 127 (USMC), Quartermaster, General Correspondence, January 1940, 215-3, Box 145.
- Record Group 127 (USMC), Quartermaster, General Correspondence, January 1940, 215-3, Box 146.
- Record Group 127 (USMC), Quartermaster, General Correspondence, January 1940, 215-3, Box 147.
- Record Group 127 (USMC), Quartermaster, General Correspondence, January 1940, 215-3, Box 148.
- Record Group 127 (USMC), Records of the USMC, Division of Public Information, General Correspondence, 1942- 1950, Box 1 of 1.

The boxes contained information primarily related to basic activities and events occurring at Camp Lejeune, as well as general ordnance orders and supply issues. Several historic maps were found showing the French Creek area.

List of Documents Obtained from National Archives

- "Camp Lejeune General Area Map," February 12, 1942.
- "Camp Lejeune General Area Map," March 11, 1947.
- "Danger Zones in Navigable Waters," Document, June 3, 1947
- "Index Sheet to Accompany Annual Report Maps, Camp Lejeune, North Carolina," June 30, 1947.
- "Montford Point Camp and Vicinity Map," June 30, 1947.
- "Training Facilities, Regulations Governing Use of." Document, March 6, 1946.
- "Training Facilities, Regulations Governing Use of." Document, March 6, 1947.

MCB Camp Lejeune Base Site Visit and Records Review

Base Contact: Ms. Linda Futrell, Public Works Division, 910-451-2818 x3257

File reviews of records in the base Technical Records office were conducted during the site visit. Additionally, interviews were conducted with Dennis Dunham/Technical Records, and Duane Richardson/EOD Base Range Safety Officer.

List of Documents Obtained from Camp Lejeune

Base Real Estate Office

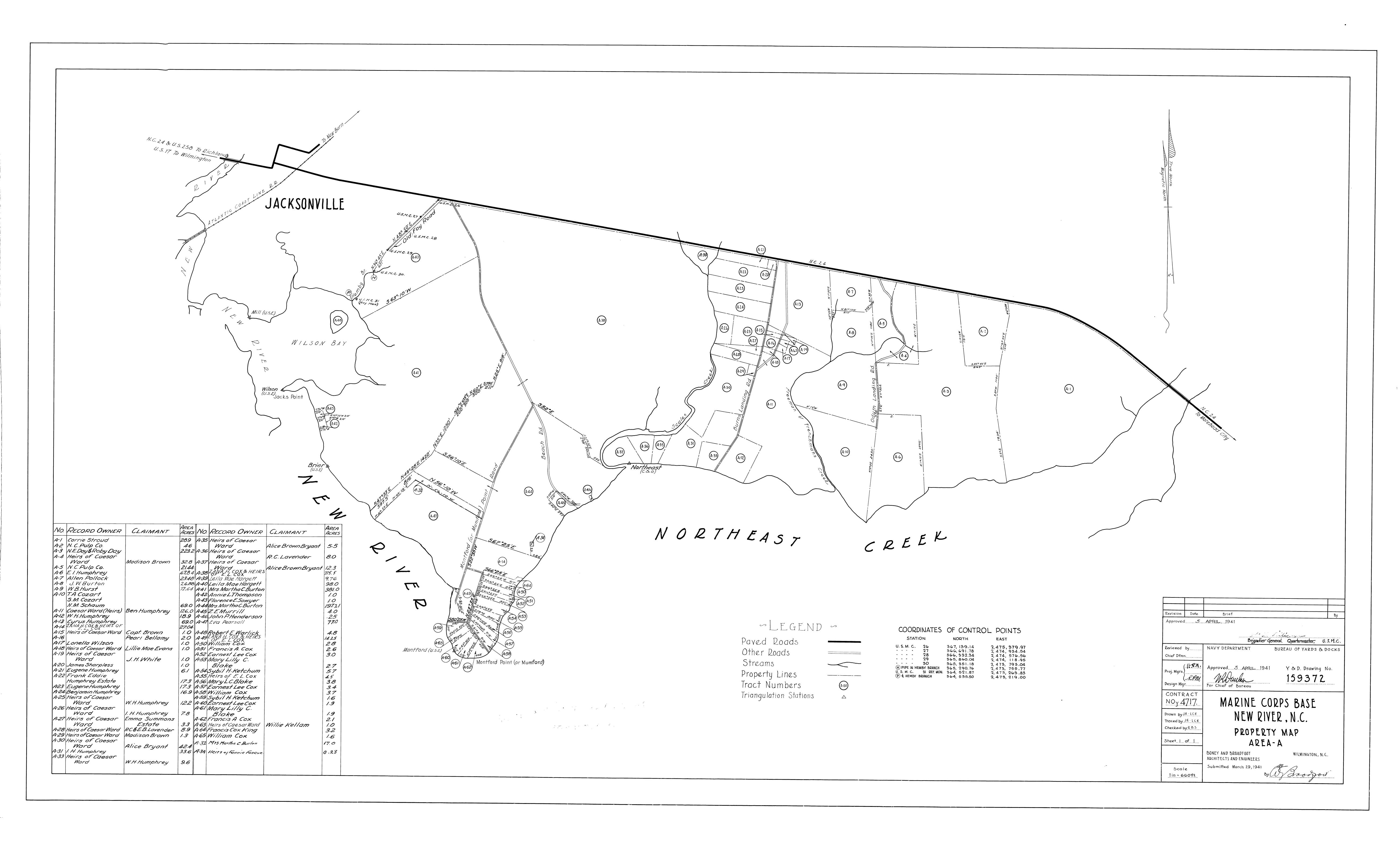
- "Montford Point Camp and Vicinity," June 30, 1943.
- "Montford Point Camp and Vicinity," June 30, 1945.
- "Montford Point Camp and Vicinity," June 30, 1949.
- "Montford Point Camp and Vicinity," June 30, 1952.
- "Montford Point Camp and Vicinity," June 30, 1956.
- "Montford Point Camp and Vicinity," June 30, 1963.
- "Montford Point and Camp Knox Areas," July 31, 1984.
- "Montford Point Area," July 31, 1984.
- "Montford Point Area," 1985.
- "Existing Conditions Map," Grid A4, December 17, 2004.
- "Existing Conditions Map," Grid A4, August 29, 2008.
- "Existing Conditions Map," Grid A5, December 17, 2004.
- "Existing Conditions Map," Grid A5, August 29, 2008.
- "Existing Conditions Map," Grid B3, December 17, 2004.

- "Existing Conditions Map," Grid B3, August 29, 2008.
- "Existing Conditions Map," Grid B4, December 17, 2004.
- "Existing Conditions Map," Grid B4, August 29, 2008.
- "Existing Conditions Map," Grid B5, December 17, 2004.
- "Existing Conditions Map," Grid B5, August 29, 2008.

Base Library

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- Lotfield, Thomas, C. Principal Investigator. UNCW, August 1981. *Archeological and Historical Survey of USMC Base, Camp Lejeune; Naval Facilities Engineering Command Norfolk, Coastal Zone Resource Corp., Vol. II, Contract No. N62470-79-C-4273.*







SMALL-ARMS AMMUNITION

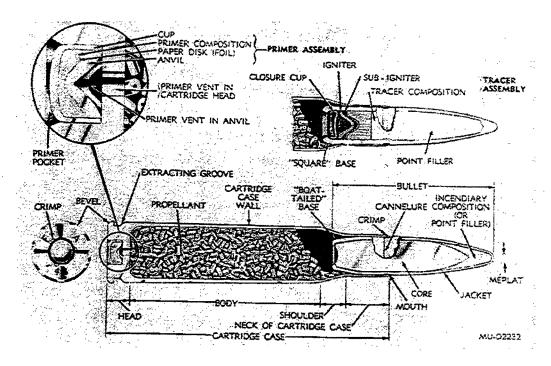
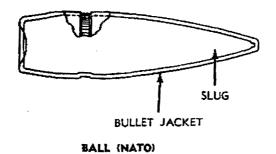


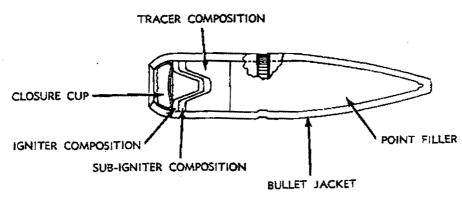
Figure 1. Typical cartridge (sectional)

General. Small-arms ammunition, as used herein, describes a cartridge or families of cartridges intended for use in various types of hand-held or mounted weapons through 30 millimeter. Within a caliber designation, these weapons may include one or more of the following: rifles (except recoilless), carbines, pistols, revolvers, machineguns and shotguns. For purposes of this publication, small-arms ammunition may be grouped as cartridges intended primarily for combat or training purposes (API, HEI, tracer or ball); for training purposes only (blank or dummy); or for special purposes (rifle grenade or spotter-tracer). Refer to TM 9-1306-200 for more detailed information on small-arms ammunition.

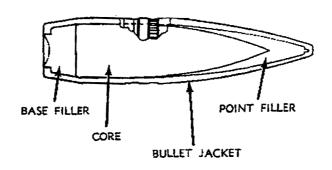
Cartridges. In general, a small-arms cartridge is identified as an assembly of a cartridge case, primer, a quantity of propellant within the cartridge case, and a bullet or projectile. Blank and rifle grenade cartridges are sealed with paper closure disks in lieu of bullets. Dummy cartridges are composed of a cartridge case and a bullet. Some dummy cartridges contain inert granular materials to simulate the weight and balance of live cartridges. A typical cartridge and the terminology of its components are shown in figure 1.

Case. Although steel, aluminum, zinc and plastic materials have been used experimentally, brass, a composition of 70 percent copper and 30 percent zinc, is the most commonly used material for cartridge cases. Steel, as well as brass, is an approved material for caliber .45 cartridge cases. Brass, paper and plastic are used for 12 gage shotshell bodies and aluminum is used for military-type .410 gage shotshell bodies.



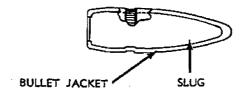


TRACER (NATO)

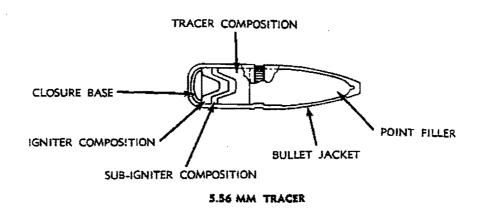


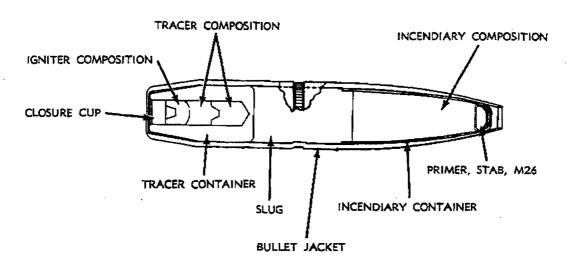
ARMOR-PIERCING (NATO)

Figure 2. 7.62 mm bullets (sectional)



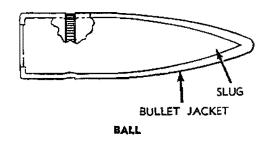
5.56 MM BALL

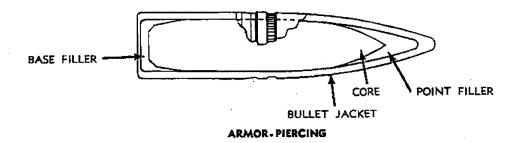


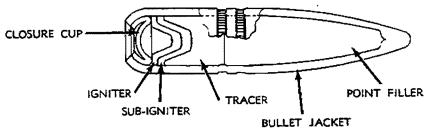


CALIBER .50, SPOTTER TRACER

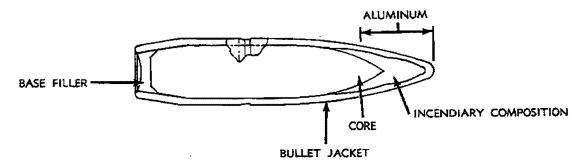
Figure 3. 5.56mm and caliber .50 spotter tracer bullets (sectioned).







TRACER



ARMOR-PIERCING INCENDIARY

Figure 4. Caliber .30 bullets (sectional).

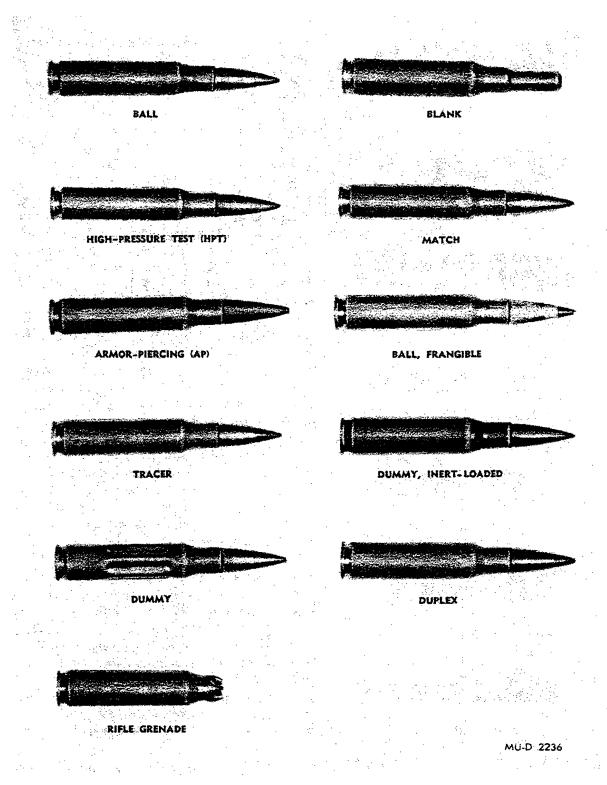
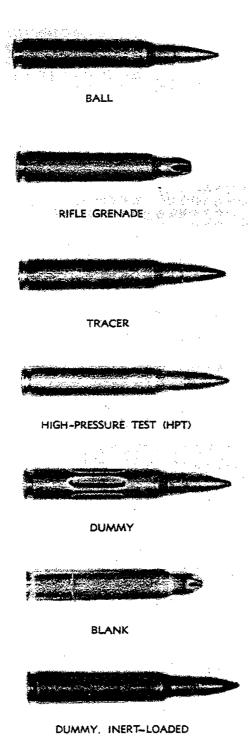


Figure 5. 7.62mm cartridges



weights of propellant. This is to impart sufficient velocity (within safe pressures) to the projectile to obtain the required ballistic performance. These propellants are either of the single-base (nitrocellulose) or double-base (nitrocellulose and nitroglycerine) type. The propellant grain configuration may be cylindrical with a single, lengthwise perforation, spheroid (ball) or flake. Most propellants are coated with a deterrent (to assist in controlling the rate of combustion) and with a final coating of graphite (to facilitate flow of propellant and eliminate static electricity in loading cartridges).

Propellant. Cartridges are loaded with varying

Primer. Small-arms cartridges contain either a percussion or electric primer. The percussion primer consists of a brass or gilding metal cup that contains a pellet of sensitive explosive material secured by a paper disk and a brass anvil. The electric primer consists of an electrode button in contact with the priming composition, a primer cup assembly and insulator. A blow from the firing pin of the weapon on the center of the percussion primer cup base compresses the primer composition between the cup and the anvil. This causes the composition to explode. The function of the electric primer is accomplished by a firing pin with electrical potential, which contacts the electrode button. This allows current to flow through the energy-sensitive priming composition to the grounded primer cup and cartridge case, exploding the priming composition. Holes or vents in the anvil or closure cup allow the flame to pass through the primer vent in the cartridge case and ignite the propellant. Rimfire ammunition, such as the caliber .22 cartridge, does not contain a primer assembly. Instead, the primer composition is spun into the rim of the cartridge case and the propellant is in intimate contact with the composition. On firing, the firing pin strikes the rim of the cartridge case, compressing the primer composition and initiating its explosion.

Bullet. With few exceptions, bullets through caliber .50 are assemblies of a jacket and a lead or

.

Figure 6. 5.56mm cartridges

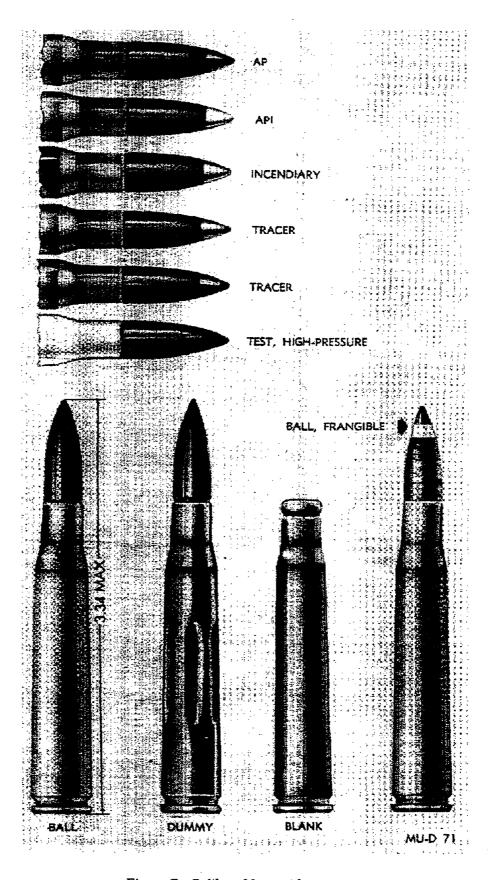


Figure 7. Caliber .30 cartridges

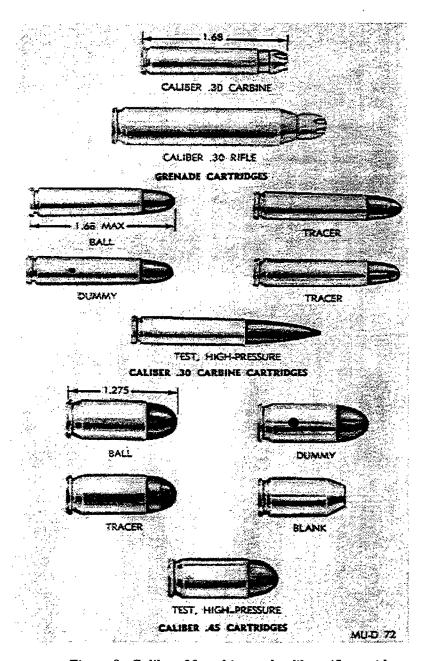


Figure 8. Caliber .30 carbine and caliber .45 cartridges

steel core. They may contain other components or chemicals which provide the terminal ballistic characteristics of the bullet type. The bullet jacket may be either gliding metal, gliding-metal clad steel, or copper plated steel. Caliber .30 and 7.62mm frangible bullets are molded of powdered lead and a friable plastic which pulverizes into dust upon impact with the target. The pellets used in the shotgun shells are spheres of lead alloys varying from 0.08 inch to 0.33 inch in diameter



Figure 9. Caliber .50 cartridges

Ball Cartridge. The ball cartridge is intended for use in rifles, carbines, pistols, revolvers and/or machineguns against personnel and unarmored targets. The bullet, as designed for general purpose combat and training requirements, normally consists of a metal jacket and a lead slug. Caliber .60 ball bullet and 7.62-mm, ball M59 bullet contain soft steel cores.

Tracer Cartridge. By means of a trail of flame and smoke, the tracer cartridge is intended to permit visible observation of the bullet's in-flight path or trajectory and the point of impact. It is used primarily to observe the line of fire. It may also be used to pinpoint enemy targets to ignite flammable materials and for signaling purposes. The tracer element consists of a compressed, flammable, pyrotechnic composition in the base of the bullet. This composition is ignited by the propellant when the cartridge is fired. In flight, the bullet emits a bright flame which is visible to the gunner. Trace burnout occurs at a range between 400 and 1,600 yards, depending upon the caliber of ammunition.

Match Cartridge. The match cartridge is used in National and International Match Shooting competitions. The bullet consists of a gliding-metal jacket over a lead slug. The cartridges are identified on the head face with the designation NM (National Match) or Match.

Armor-Piercing Cartridges. The armor-piercing cartridge is intended for use in machine-guns or rifles against personnel and light armored and unarmored targets, concrete shelters, and similar bullet-resisting targets. The bullet consists of a metal jacket and a hardened steel-alloy core. In addition, it may have a base filler and/or a point filler of lead.

Armor-Piercing-Incendiary Cartridge. The armor-piercing-incendiary cartridge is used in rifles or machineguns as a single combination cartridge in lieu of separate armor-piercing and incendiary cartridges. The bullet is similar to the armor-piercing bullet, except that the point filler is incendiary mixture instead of lead. Upon impact with the target, the incendiary mixture

burst into flame and ignites flammable material.

Armor-Piercing-Incendiary Tracer Cartridge. The bullet of the armor-piercing- incendiary-tracer cartridge combines the features of the armor-piercing, incendiary, and tracer bullets and may be used to replace those cartridges. The bullet consists of a hard steel core with compressed pyrotechnic mixture in the cavity in the base of the core. The core is covered by a gilding-metal jacket with incendiary mixture between the core point and jacket. This cartridge is for use in caliber .50 weapons only.

Duplex Cartridge. The duplex cartridge contains two special ball type bullets in tandem. The front bullet is positioned partially in the case neck, similarly to a standard ball bullet. The rear bullet, positioned completely within the case, is held in position by a compressed propellant charge. The base of the rear bullet is angled so that in flight, it follows a path slightly dispersed from that of the front bullet

Spotter-Tracer Cartridge. The spotter-tracer cartridge is intended for use in coaxially mounted caliber .50 spotting rifles. The bullet trajectory closely approximates that of 106mm projectiles. Thus, this cartridge serves as a fire control device to verify weapon sight settings before firing 106mm weapons. The bullet contains an impact detonator and incendiary composition which identify the point of impact by flash and smoke.

Blank Cartridge. The blank cartridge is distinguished by absence of a bullet. It is used for simulated fire, in training maneuvers, and for saluting purposes. It is fired in rifles and machineguns equipped with blank firing attachments.

Grenade Cartridge. The grenade cartridge is used to propel rifle grenades and ground signals from launchers attached to rifles or carbines. All rifle grenade cartridges are distinguished by the rose petal (rosette crimp) closure of the case mouth.

Frangible Cartridge. The caliber .30 frangible cartridge, designed for aerial target training purposes, is also used in rifles and machineguns for target shooting. Caliber .30 and 7.62mm frangible cartridges are used in tank machineguns, firing single shot, for training in tank gunnery. At its normal velocity, the bullet, which is composed of powdered lead and friable plastic, will completely disintegrate upon striking a 3/16-inch aluminum alloy plate at 100 yards from the muzzle of the gun. These cartridges are not to be used on any but well ventilated indoor ranges to preclude buildup of toxic bullet dust. Inhalation of bullet dust may be injurious to health

Incendiary Cartridge. The incendiary cartridge was designed for aircraft and ground weapon use to ignite combustible targets (e.g., vehicular and aircraft fuel tanks). The bullet contains a compressed incendiary mixture which ignites upon impact with the target. The incendiary cartridge has been superseded by the API and APIT cartridges because of their improved terminal ballistic effects

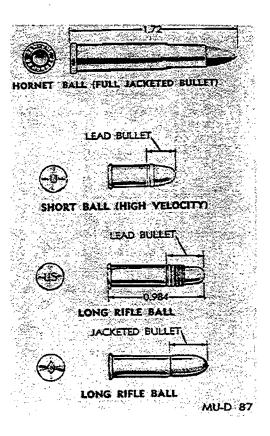


Figure 11. Caliber .22 cartridges

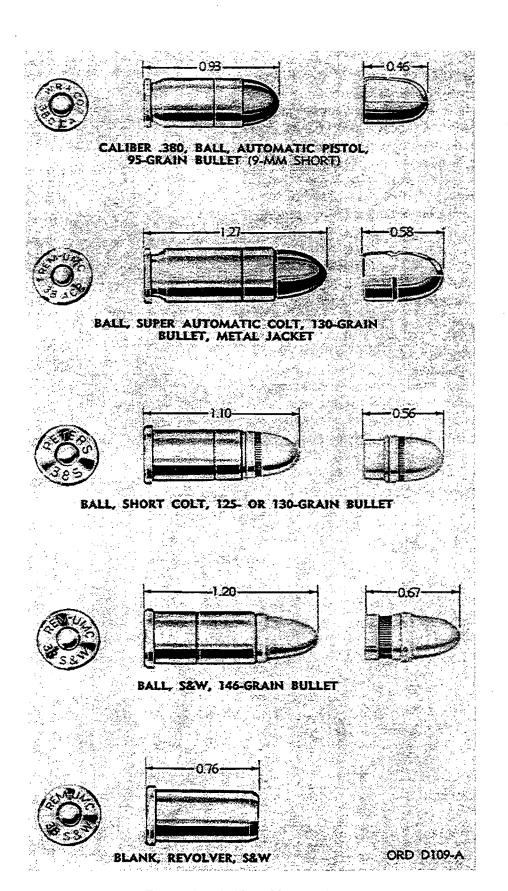


Figure 12. Caliber .38 cartridges.



Figure 13. 12 gage shotgun shells.

Target-Practice Cartridge. The 20mm target-practice cartridge is the conventional steel shell with steel nose plug. It is used primarily for training purposes. This is not a combat cartridge; hence, no fuze is used in the assembly.

Special Purpose Cartridge.

Cartridges of various calibers. (fig. 11 through 13), which consist of different types of projectiles and bullets, are used for training and special purposes. They include the following:

- (1) Caliber .22 long rifle and caliber .38 and .45 wad-cutter cartridge for target shooting.
- (2) Caliber .45 blank cartridges fired in exercises to condition dogs to gun fire.
- (3) Caliber .22 hornet and .410 shotgun cartridges for firing in Air Force combination (survival) weapons for hunting purposes.
- (4) Caliber.45 line-throwing cartridges for firing in caliber .45 line-throwing rifles. The Navy uses these for throwing lines from ship-to-ship. The Army Signal Corps uses these for projecting signal wires over elevated terrain
- (5) Shotshells containing the designated shot sizes as required for the following:
 - (a) 12 gage #00 Buck for guard duty
 - (b) 12 gage #4 Buck for guerrilla purposes.
 - (c) 12 gage #6, 71/2 and 8 shot for clay target shooting for training purposes."
 - (d) .410 gage #7 shot for caliber .22/.410 survival weapons maintained by aircraft.

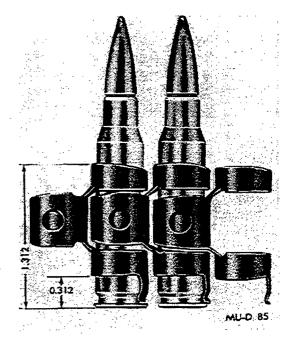


Figure 14. Linked 7.62-mm cartridge

Special purpose cartridges. These also include the following types of military cartridges:

- (1) Dummy. The dummy cartridge is used for practice in loading weapons and simulated firing to detect flinching of personnel when firing weapons. It consists of a cartridge case and a ball bullet. Cartridge identification is by means of holes through the side of the case or longitudinal corrugations in the case and by the empty primer pocket.
- (2) Dummy inert-loaded. This cartridge consists of a cartridge case, a ball bullet and inert granular material in the case simulating the weight and balance of a live cartridge. The exterior of the cartridge is identified by a black chemical finish and by the absence of a primer. This cartridge is used by installations for testing weapon function, linkage and feed chutes.
- (3) High-pressure test. High-pressure test ammunition is specially loaded to produce pressures substantially in excess of the maximum average or individual pressures of the corresponding service cartridge. This cartridge is not for field issue. It is used only by armorers and weapons mechanics for proof firing of weapons (rifles, pistols, machine guns) at place of manufacture, test and repair. Because of excessive pressures developed by this type of ammunition, and the potential danger involved in firing, proofing of weapons is conducted only by authorized personnel from fixed and shielded rests by means of a lanyard or other remote control methods.

Metallic Links and Clip.

Metallic links. (fig. 14 and 15) are used with caliber .30, caliber .50, 5.56mm, 7.62mm and 20mm cartridges in machine guns. The links are made of steel, surface treated for rust prevention. They are used to assemble cartridges into linked belts of 100 to 750 cartridges per belt. The links must meet specific test and dimension requirements to assure satisfactory ammunition feed and functioning in the machine gun under all training and combat service conditions.

Different configurations of cartridge clips. These permit unitized packages of ammunition. This facilitates transfer of cartridges to appropriate magazines for caliber .30, 7.62mm and 5.56mm rifles. The caliber .30 eight-round clip feeds eight cartridges as a unit into the receiver of the rifle. The caliber .45 clip feeds three cartridges as a unit into the revolver cylinder. Five-round and eight-round clips are used with caliber .30 cartridges; five-round clips with 7.62mm cartridges; ten-round clips with caliber .30 carbine and 5.56mm cartridges; and three-round clips with caliber .45 cartridges

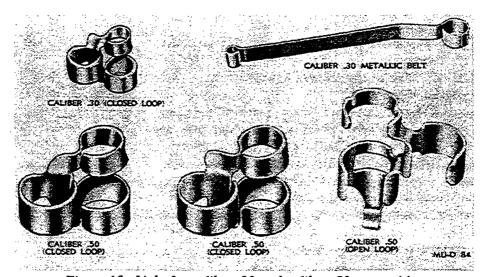


Figure 15. Links for caliber .30 and caliber .50 ammunition

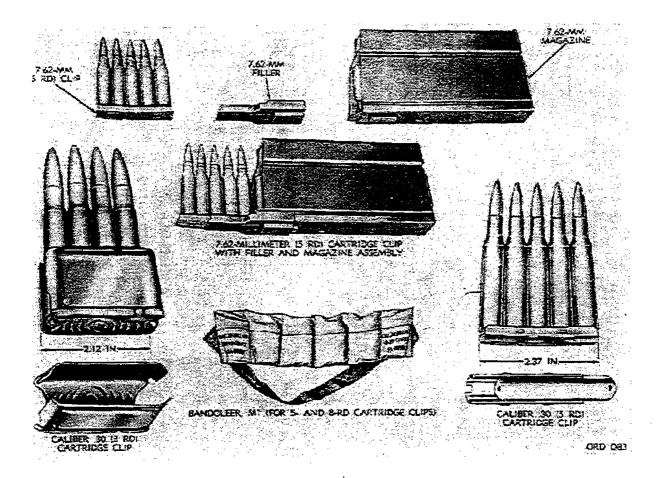


Figure 16. Cartridges in 20-round cartons in ammunition box

Packing and Identification Marking.

Packing. These containers and methods for packing military small-arms ammunition are specified in drawings, specifications or, as required, in the procurement contract. Military containers presently being manufactured have been limited to a few standard types designed to withstand all conditions commonly encountered in handling, storage and transportation of ammunition. Military cartridges, except 20mm, are packed in metallic ammunition boxes, over- packed in wooden wire-bound crates. Twenty millimeter cartridges are packed in ammunition boxes only. When commercial cartridges are not packed in a military pack, they are packed in accordance with standard commercial practices.

Identification Markings. Each outer shipping container and all inner containers are fully marked to identify the ammunition. Wire-bound boxes are marked in black and ammunition boxes are painted olive drab, with markings in yellow. When linked ammunition is functionally packed, component lot numbers are replaced by a functional lot number. Typical packing and identification markings are illustrated in figures 17 and 18.

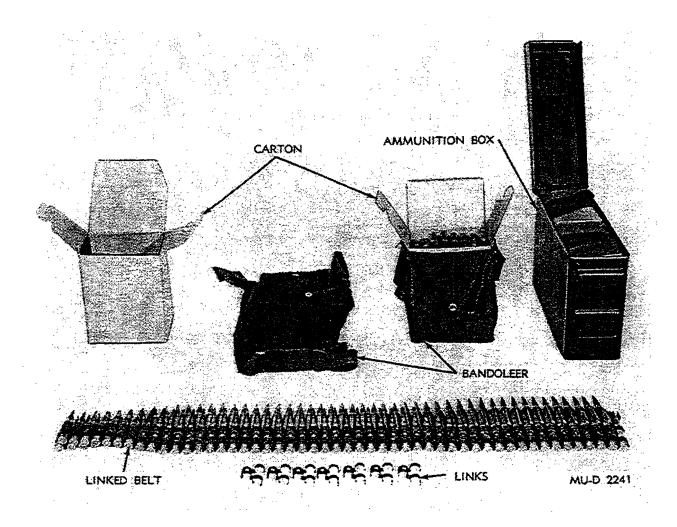


Figure 17. Cartridges, link belt, cartons, bandoleers and ammunition box.

Care, Handling and Preservation.

Small-arms ammunition is comparatively safe to handle. It is packed to withstand transportation, handling and storage conditions normally encountered in the field. However, consideration should be given to general handling precautions pertaining to ammunition and explosives.

Reference: This data is a reprint of Chapter 3, TM 9-1300-200, Ammunition General, October 1969, excluding information on 20mm and 30mm ammunition.

Appendix B Soil Boring Logs, Test Pit Logs, Well Construction Diagrams, and Temporary Well Abandonment Records

PROJECT NUMBER 377812 BORING NUMBER

SHEET

/ OF /

SOIL BORING LOG

PROJECT CTC-0! LOCATION CJCA COMP Leicune, NC
ELEVATION Not SUV Veyed DRILLING CONTRACTOR SAE DACCO
DRILLING METHOD AND EQUIPMENT POWER Probe 9500 VTR
WATER LEVELS 9 695 START 7/26/09 1340 FINISH 7/26/09 1400 LOGGER D. Brown / CLT

ŠF		SAMPLE		STANDARD	SOIL DESCRIPTION	COMMENTS
DEPTH BELOW SURFACE (FT)	INTERVAL	NUMBER AND TYPE	RECOVERY (FT)	PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
-	o-41	00-1	Z [']		U-2' No Recovery 2-4' silty sand (SM) Black, Moist, 1005e, fine grained	Hand Auger cleared 0-5' bgs
S -	4-8'	DP-2	3'		4-5' No Recovery 5-10' Sound (SP) light grey/white, Moist, loose, fine grained	water table @ 9'bgs
0 -	B-12'	OP-3	y'		10-14' Clay (CL) Darkgrey, wet, stiff 14-16' Sand (SP) wet, same as 5-10'	Collected Sample CJCA-5801-2-7-09C
5 -	12-16	DRY	y'		End of Boring 16'b95	Construction details for CJCA-Twol "Prepacted screen I bag of #2 sand screen; 8-18' bgs Sand! 8-18' bgs Bentonite; 7-8' bgs
						Priller could not drill beyond 16' 695.
					-	

PROJECT NUMBER	BORING NUMBER	SHEET !	OF !
	SOIL BORING LOG		

PROJEC	т	(A)	11-(CSCA	LOCATION —	Camp Lyeune, NC
ELEVATION				The second secon	_ DRILLING CONTRACTOR _ 3 REDA CLU	
DRILLING	G METH	IOD ANI	4		TOT WIGEOPYSHE SYNT	
WATER L	EVELS		6.	bas	START 0925 7-29-0 FINISH 0940	7/29/09 LOGGER S Beville
§€		SAMPLE		STANDARD PENETRATION	SOIL DESCRIPTION	COMMENTS
DEPTH BELOW SURFACE (FT)	INTERVAL	NUMBER AND TYPE	RECOVERY (FT)	TEST RESULTS 6"-6"-6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
-	0-4	26-1	3		0-1 No Recovery 1-5 Sulty Sand (SM), black, - moist, in dense, vfg, no odor 5-8 Sand (SP), gray, wet,	XRF 4-6" ND -
-	4-8	De-2	1		dense, vfg	Maren @ 60' bes
10 -					Baring computed 38' bgs	Sample: CSCA 5602-2-6-09C C3CA-5602-2-6-09C-5D
						- - - - - -

PROJECT NUMBER

BORING NUMBER

SHEET

OF /

SOIL BORING LOG

PROJECT CTC-O! LOCATION CTCA CAMP Lejeune, NC

ELEVATION Not Surveyed DRILLING CONTRACTOR SAE DACCO

DRILLING METHOD AND EQUIPMENT Power Probe 9500 UTR

WATER LEVELS 10' 695 START / 126/09 0735 FINISH 7/126/09 1015 LOGGER DIBYCUM / CLT

	1	CAMPIC	-		March St.	OGGER DISTORTIVE
OF.		SAMPLE	_	STANDARD PENETRATION	SOIL DESCRIPTION	COMMENTS
DEPTH BELOW SURFACE (FT)	INTERVAL	NUMBER AND TYPE	RECOVERY (FT)	TEST RESULTS 6"-6"-6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
	0-41	09-1	2'		0-2' No Recovery 2-4' Peat (PT) Black, loose, Moist 4-5' No Recovery	Hand Auger Cleared 0-5' bgs
5-	4-81	DP-2	3'		5-9.5' Clarey Sand (SC) Brown/grey, Moist, Medium dense, fine grained 9.5-10.5' Silty Sand (SM)	
10 -	8-12	DP-3	4'	-	light grey, Moist, loose, fine grained wet (a) lo' bg 5 lo.5-15' Sand (SP)	water table 60 10' bgs . XRF No Detections .
15 -	12-16	DP-4	4'		fine grained 15-16' Clay (CL) Parkgrey, wet, stiff	Driller could not drill past 16' bgs
20-					End of Boring 16' b95	Details for CSCA-TWO2 1" Prepacked Screen 1 bag # 2 Sand (5016) Screen: 8-18' bgs
-					- - -	Sand: 8-18' bgs Bentonite: 7-8' bgs Collected Sample
-					- - -	CJCA-5803-2-7-09C @ 1030
-					-	

-		_	_	 	
			-		
	1000	-			
C		~		 -	_

PROJECT NUMBER
317812

BORING NUMBER
SHEET | OF |
SOIL BORING LOG

PROJECT	CIO	11-6	CJCA			_ LOCATION	Camp	Leieure	NC
ELEVATION _					_ DRILLING CONTRACTOR	SAEDAS		3	
DRILLING MET	THOD AN	D EQU	IPMENT_	MAB	DPT W/Geogrape 54				
WATER LEVEL	.s	-	-7		START 0255 7/25	1/09 FINISH 09	00 7/29/09	LOGGER -	South

ŠF		SAMPLE		STANDARD	SOIL DESCRIPTION	COMMENTS
SURFACE (FT)	INTERVAL	NUMBER AND TYPE	RECOVERY (FT)	PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
54	0-4	1-30	3		0-1 No Recovery 1-4 Sulty Sand (SM), gray w1 - Some black, moit, loops, vfg,-	
5 -	4-8	78-2	4		no odor 4-6 Sand w/ Clay (SP-SC), gray, mout: dense, ufg 6-8 Sand (SP), It gray, nout.	KRF 4-6: 56 158 ppm
10 -					Boring completed @ 8' bg)	Sample: [CSCA-5604-4-7-09C]
				1		

PROJECT NUMBER
377812

BORING NUMBER
5605/TW05

SHEET | OF |

SOIL BORING LOG

PROJECT CTO-11 CJCA	LOCATION Camp Lejeune, NC
ELEVATION (NOT SMITTERS	DRILLING CONTRACTOR SAEDACLO
	HA F DET W/ Geoprobe GOLD DT
WATER LEVELS 12' has	START 1435 7/2400 FINISH 1515 7/26/09 LOGGER S. Beville

>	,	CAMP! 5		OTANICI DO	START 1435 172409 FINISH 1515	September of the Control of the Cont
ŞE.		SAMPLE		STANDARD PENETRATION TEST	SOIL DESCRIPTION	COMMENTS DEPTH OF CASING, DRILLING RATE,
SURFACE (FT)	INTERVAL	NUMBER AND TYPE	RECOVERY (FT)	6"-6"-6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
	0-4	1-90	3		0-1 No Recovery 1-3.5 Clayery Sand (SC), gray, - moist, dense, vfg littlesitt -	NRF 2-41 : 6)D
ラー - -	4.8	26-3	4		35-8 Sand white (sp.sm),	XRF 4-6" ND
- qp	8-12	78-3	2		10-18 SCA (35-8) 14-18 Suty Vary (CL), d.gray, _	12 / has
5 -	12-160	26-11	И		18-20 Sand wisht (sp.sm).	water @ 12' bgs
	- 1620	b0-5	4			Sample: [CJCA-5605-2-7-09C]
20 =					Boring completed @ 201 bgs.	well construction: 10-20': I" screen 0-10': I" puc coging 9-20': Sand
	- - - - -					7-9': Bentanite chips PVC stick up:
	-					-

PROJECT NUMBER
377812

BORING NUMBER
5606

SHEET OF I

PROJECT	C10-11	CTCA	LOGITICA COMO A LANGUA NIC	
		Surveyed	DRILLING CONTRACTOR SAEDACCO	
			HRJ DIT W/ Geoprobe 54DT	
WATER LEVE	LS	-	START 0945 7/29/09FINISH 1000 7/29/09 LOGGER S BEN	Me

<u> </u>	SAMPLE		STANDARD	SOIL DESCRIPTION	COMMENTS
SURFACE (FT)	NUMBER AND TYPE	RECOVERY (FT)	PENETRATION TEST RESULTS 6*-6*-6* (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
-	D(-1	4		0-4 Suty Sand (SM), grays - tan, dry, loose, vfg - 4-8 Sand (SP), lt tan, moists	XXF 2-4": ND
4.8	08-2	4		- , , ,	KRF 4-6: ND
				Busing completed @ 8' bgs -	Sample: CJCA-3606-2-7-09C
				-	

PROJECT NUMBER 377812

SGOT/TWOH

SHEET |

OF

SOIL BORING LOG

PROJEC	т	70-11	0	LA	LOCATION _C	amp Lejeune, NC	_
ELEVAT	ION	Not .	SMAN	usd	DRILLING CONTRACTOR SAEDA CLO		
					& DPT W/Geoprobe 661077	-7/21/20 5 Graville	-
WATER	LEVELS	- 1	bas		START 1025 7/26/09 FINISH 1055	LOGGER JANKE	=
ðF.		SAMPLE		STANDARD PENETRATION	SOIL DESCRIPTION	COMMENTS	
DEPTH BELOW SURFACE (FT)	INTERVAL	NUMBER AND TYPE	RECOVERY (FT)	TEST RESULTS 6"-6"-6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION	
	0.4	HA-1	0		0.45No Recovery (HA) 45-9 Sand (SP) H. gray. Moit		-
5-					to dry, loose, ufg - 9-14 Sand W/Silt (SPSM), gray - wlorange moiet to wet vfg.	xrf 4-6': ND	
	4-8	D6 /	35		m. dense 14.15 Sandy Clay (CL), a	XRF 6-7" ND	-
10	8-12	D1-2	E4		gray, wot, soft, ofg	water@10' bgs	-
	12-16	708-3	4		moist, dense, vfg	- Sample:	-
15 -	-				boring completed @ 10' bgs .	Well construction	-
20 -	-					6-16' 1" Screen 0-6': PVC caring (1") 5-16' Sand	-
						4.5' Bentunite Chips PVC Stilling.	-
	-					-	-
	-					-	-

CH	21	/IH	111	
	Contract of the			_

PROJECT NUMBER
377812 BORING NUMBER
5608 SHEET OF I

SOIL BORING LOG

PROJECT	CTO-11 CJCA	LOCATION Camp Leizure NC
ELEVATION _	Not surveyed	DRILLING CONTRACTOR SACRACCO
DRILLING MET	THOD AND EQUIPMENT LA	& DPT w/ Geoprobe 54DT
WATER LEVEL		START 0830 7/29/08-11-150/09 - 150/09 - 3 600 11

VATER LEVELS					START 0830 7/23 09 FINISH 0840	TIZA OA LOGGER DENULL
§€		SAMPLE		STANDARD PENETRATION	SOIL DESCRIPTION	COMMENTS
DEPTH BELOW SURFACE (FT)	INTERVAL	NUMBER AND TYPE	RECOVERY (FT)	PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
-	0-4	D 6-1	3		1-4 Sulty Sand (SM), gray, dry,	XRF 2-4" : ND
-	4.8	76.2	4		loose, vfg, trace class - 4-7 Sand (SP). It gray, dry, - dense, little clay, vfg	KRF 4-6: 100
					7-8 Sand (SP), It gray will - orange, dry, loose, Ag Baring computed @8' bgs	Sample: [C5CA-SB08-2-7-09C]
						-
_					-	
-						

PROJECT NUMBER

377812

BORING NUMBER

5609 TW05 SHEET OF

SOIL BORING LOG

PROJECT CTU-II, CICA	LOCATION Camp Legens. NC
ELEVATION Not surveyed	DRILLING CONTRACTOR SAEDACO
DRILLING METHOD AND EQUIPMENT _ H	A r DPT W/ Geoprobe 6610 DT
WATER LEVELS 14' bas	START 0820 7/26/09 FINISH 0920 7/26/09 LOGGER 5 Beville

SF L	SAMPLE			STANDARD	SOIL DESCRIPTION	COMMENTS	
SURFACE (FT)	INTERVAL	NUMBER AND TYPE	RECOVERY (FT)	PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION	
	9-4	D6-1	15		0-2.5 No Recovery 2.5.4 Sand Willay (SP-SC) d tan, dry, m. dense, fog, wille		
5	4-8	DP-2	25	u	4-5.5 No Recovery	XRF 4-6: ND	
10	8-12	78-3	4		dry to moist, losse, vfg, trace sut = H-20 Sitty Sand (SM), gray wil - orange, wet, m. dense, vfg, trace -		
15 –	12-14	.96-rt	4		20-24 No Recovery	water @ 14' bys	
20	16 20	DP-5	н			Sample: [CJCA-3609-2-4-09C] [CJCA-5609D-2-4-09C]	
-	20-24	-96-10	0			10,611 300 10 2 1 0 101	
25 -					Boring completed@ 24' begs	Well construction: 12.22': I" screen 0.12': I" PVC caring 11.22': Sand 9-11': Bentonite chip: PVCstuleup ~ 1.5'	

PROJECT NUMBER
377712

BORING NUMBER
5610

SHEET | OF |

POJEC	т	CT	11-6	CJCA	200/11/01/	amp leveure NC
ELEVATI			3UNUE		DRILLING CONTRACTOR SAEDA CCO	
DRILLIN WATER			EQUIP	MENT HA	START 1645 7/29/19 FINISH 1700	7/23/09 LOGGER 3 Berille
		SAMPLE		STANDARD	SOIL DESCRIPTION	COMMENTS
DEPTH BELOW SURFACE (FT)	INTERVAL	NUMBER AND TYPE	RECOVERY (FT)	PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
-	0-4	D8-1	4			1.6F 2-41: ND -
5-	4-8	ne-2	4		2-7 Sand (SP), gray, Moist, _ loose, vfg	XRF 4-6: ND -
10 -					gray, wet, M denre, vfg. = little Silt - Boring completed @ 8' bgs -	Sample: - [CJCA-3610-2-6-09C]
-						
	-					

PROJECT NUMBER
377812 BORING NUMBER
5611 FTW06 SHEET OF 1

SOIL BORING LOG

PROJECT	CTO-11 CJCA	LOCATION Camp Legeune, NC
ELEVATION	Not gurraged	
DRILLING ME	THOD AND EQUIPMENT	
WATERIEVE	is n' mas	START 1235 7/2/04 TANGE (215 7/2/109 LOGGER 5 BENILLS

SE L	S	AMPLE	-	STANDARD	SOIL DESCRIPTION	COMMENTS
SURFACE (FT)	INTERVAL	NUMBER AND TYPE	RECOVERY (FT)	PENETRATION TEST RESULTS 6"-6"-6"	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION WE measurements in ppm
-	>-4		2		0-2 No Recovery 2-4 Silty Sand (SM), tan, dry, - m. dense, ofg. trace day -	XRF 2-4" : 100
5 - 4	4-8	DP-2	Ч		Loose, vfg, travesite	XRF 4-6" ND
10-8	i-12	DP-3	ц		gray wlorange, on dense, ifg, _	water @ iv bas
15-16	2.16	170 .11	ц			Sample: [CSCA-SGII-2-7-09C]
	16 20	b(·5				
0					Boring completed @ 201 bgs.	Well construction: 6-16': I" Screen
				*		5-16' Sand 4-5' Bentoute chips. PVCStickup ~1'
						-

THE RES	1 - D 1 1 1	## E		
	12N		11L	

PROJECT NUMBER	BORING NUMBER		
377812	5612	SHEET	OF

PROJEC	т.	C-	10-11	CJCA		1 0.00
ELEVATION		Not				emp legerme. NC
	3 METH	OD ANI	D EQUI	PMENT NO	& DPT w/ Geoprobe 5407	
VATER L					START 1030 7/29/09 FINISH 1045	7/29/09 LOGGER 3 Beville
MF.		SAMPLE		STANDARD PENETRATION	SOIL DESCRIPTION	COMMENTS
DEPTH BELOW SURFACE (FT)	NTERVAL	NUMBER AND TYPE	RECOVERY (FT)	TEST RESULTS 6"-6"-6"	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
ΩÑ	≤	ZK	ж. г.	(N)		KRF results (ppm)
-	0-4	D6-1	4			2-4': ND -
5-					- 1 miles 1 mi	4-6' ND -
	4-9	10.2	Ч		4.8 Sand (SP), It gray, dry, -	67': ND -
- 01					Boring completed @ 8' bgs -	Sample:
-					-	[CJCA-S612-2-7-09C]
-					-	- -
-					-	-
-					-	-
-						
					_	
-					- -	-
-					-	-
_					-	_

PROJECT NUMBER 377812 BORING NUMBER 5813/TW07

SHEET

OF /

SOIL BORING LOG

PROJECT CTO-0!!

LOCATION CJCA CAMP Leieune, NC

ELEVATION Not Surveyed DRILLING CONTRACTOR GAEDACCO

DRILLING METHOD AND EQUIPMENT Power probe 9500 UTR

WATER LEVELS 15.5' 695 START 7/26/09 0800 FINISH 7/26/09 0825 LOGGER D. Brown /CL. T

ŠF.		SAMPLE	E	STANDARD	SOIL DESCRIPTION	COMMENTS
DEPTH BELOW SURFACE (FT)	INTERVAL	NUMBER AND TYPE	RECOVERY (FT)	PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
3	0-4'	DP-1	2'		0-2' No Recovery 2-3' Silty Sand (SM) brown/black, Moist, loose, fine grained	Hand Auger Cleared - 0-5' bg5
5-	4-81	DP-2	4'		3-5' Clayey Sand (sc) - light grey/tan, moist, - Medium dense - S-11' Sand (sp) -	-
10 -	8-12	DP-3	3'		white/four, crange streaks, - Moist, medium dense fine grained !!-!4' No Recovery !4-17' Clayer Sand (SC)	XRF No Detections
15-	12-16	DP-4	2'		same as 3-s' wet at 15.5' 17-19' sand (sp) grey/orange, wet, louse, fine grained	water table @15.5 bgs -
20-	16-20	DP-5	ч'		19-20' clayer sand (SC) Some as 14-17' End of Boring 20'bgs	Construction Details I" pre-packed screen 1/2 of so 16 bas #2 sand Screen: 10-20'bgs Sand: 10-20'bgs Bentonite: 9-10'bgs
-					_	Collected Samples CJCA-SBI3-2-7-09C CJCA-SBI3-2-7-09C-MS CJCA-SBI3-2-7-09C-SD CJCA-SBI3-2-1-09C-SD -

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CH2	W	П	11_	_

PROJECT NUMBER	BORING NUMBER	- T	
211817	1 3614	SHEET	OF \

PROJEC	r	Cto	-11	CJCA	LOCATION	Camp Lejeune, NC			
ELEVATION				Y	DRILLING CONTRACTOR SAEDA CLOS 8 DAT W/GEODIOGE 54 DT				
DRILLING WATER L			EQUIF	MENT NA	START 1610 7/28/09 FINISH 1/05	7/28/19 LOGGER 3 Bendle			
				OTANDADD.		The state of the s			
DEPTH BELOW SURFACE (FT)	INTERVAL	NUMBER AND TYPE	RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION			
-	0-4		4		0-5 Suty Sand (SM), tan, - dry, ordense; trace day - 5-8 Sand (SP), It gray,	XRF 2-41': ND -			
5-	4.8	26.5	4		mourt, boote, vfg	KKS 6-1:100			
10 -					Boring completed @ 81 bgs -	Sample: [C5(A-5614-2-7-09C]			
-						- - -			
-									
-						-			
						-			

PROJECT NUMBER
377812 BORING NUMBER
5815/TW08 SHEET 1 OF 1

PROJECT CTO-OII	LOCATION COMPLETIEURE, NC
	OR SAEDACCO
DRILLING METHOD AND EQUIPMENT fower probe 9500 U	TR
WATER LEVELS 10' 695 START 7/25/0	1 650 FINISH 7/25/09 1715 LOGGER DI DVCWN/CLT

0-4' 19-1] O-3' No Recovery 3-4.5' Silty Sand (SM) Grey/tan, Meist, lease, fine grained 4.5-5.0' Sand Y Clay (CL) ovange/tan, Meist, stiff S-6' Clayey Sand (SC) tan/ovange, Moist, dense, fine grained 6-8' Sand (SP) white/orange, Moist, lease, Medium grained 8-9' No Recovery q-15' Same as 6-8' wet@ 10' 12-16' 19-4' 4' 15-16' Sandy Clay (CL) Crange/white, wet, Very stiff End of bering 16' Water table @ 10' bgs Water table @ 10' bgs Water table @ 10' bgs VAFF 2-4' Nothing 6-7' Cu=14PPM Callected Sample CJCA-5815-6-7-09C Well Construction Details 1" Prepacted Screen Va bag of #2 Sand Screen: 8-18' bgs Sand: 8-18' bgs Bentonite: 7-8' bgs Well Set 6 18' bgs	0-4' 18-1 1' 3-4.5' Silty Sand (SM) grey/tan, Maist, loase, fine grained 4.5-5.0' Sand Y Clay (CL) wange/tan, Maist, Stiff 5-6' Clayey sand (Sc) tam/orange, Maist, dense, fine grained 6-8' Sand (SP) white/orange, Maist, loase, Medium grained 6-8' Sand (SP) white/orange, Maist, loase, Medium grained 6-7' Cu=14PPA Zn=20PPM Collected Sample C	₹F	S	AMPLE		STANDARD	SOIL DESCRIPTION	COMMENTS
0-4' 19-1] O-3' No Recovery 3-4.5' Silty Sand (SM) Grey/tan, Meist, lease, fine grained 4.5-5.0' Sand Y Clay (CL) ovange/tan, Meist, stiff S-6' Clayey Sand (SC) tan/ovange, Moist, dense, fine grained 6-8' Sand (SP) white/orange, Moist, lease, Medium grained 8-9' No Recovery q-15' Same as 6-8' wet@ 10' 12-16' 19-4' 4' 15-16' Sandy Clay (CL) Crange/white, wet, Very stiff End of bering 16' Water table @ 10' bgs Water table @ 10' bgs Water table @ 10' bgs VAFF 2-4' Nothing 6-7' Cu=14PPM Callected Sample CJCA-5815-6-7-09C Well Construction Details 1" Prepacted Screen Va bag of #2 Sand Screen: 8-18' bgs Sand: 8-18' bgs Bentonite: 7-8' bgs Well Set 6 18' bgs	0-3' No Recevery 3-4.5' Silty sand (SM) grey/tan, Maist, loose, fine grained 4.5-5.0' Sand Y Clay (CL) orange/tan, Maist, stiff S-6' Clayey sand (SC) tan/crange, Maist, dense, fine grained 6-8' Sand (SP) White/crange, Maist, loose, Medium grained 8-9' No Recevery 9-15' Same as 6-8' WetWood 10' 12-16' 19-4 4' 15-16' Sand Y Clay (CL) Orange/white, wet, Very stiff End of bering 16' What Auger Clears O-5' 695. Water table @ 10' 695 XMF 2-4' Nothing G-7' Cu-14PPM Zn-20PPM Callected Sample CJCA-5815-6-7-09C Well Construction Details 1" Prepatited Screen 1/2 bag of #2 Sand Screen: 8-18' bgs Bentanite: 7-8' bgs Well Set 6 18' bgs Willer could not drill deeper than	DEPTH BELOW SURFACE (FT)	INTERVAL	NUMBER AND TYPE	RECOVERY (FT)	RESULTS 6"-6"-6"	MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE,	DRILLING FLUID LOSS,
S-4-8' DP-2 4' S-6' Clayey sand (sc) tan/avange, Maist, dense, fine grained 6-8' Sand (sp) white/arange, Maist, loose, Medium grained 8-9' No Re covery 9-15' Same as 6-8' wet@ 10' 15-16' Sandy Clay (CL) Crange/white, wet, Very stiff End of bering 16' S-6' Clayey sand (sc) tan/avange, Maist, dense, tine grained 6-7' Cu-14PPA 2n-20PPA Callected Sample CJCA-5B15-6-7-09C Well construction Details 1" Prepacted Screen 1/2 bag of #2 Sand Screen: 8-18' b95 Sand: 8-18' b95 Bentanite: 7-8' b95 Well Set 6 18' b95	S-4-8' DP-2 4' S-6' Clayey sand (sc) tam/arange, Maist, dense, fine grained 6-8' Sand (sp) white/arange, Maist, loose, Medium grained 8-9' No Re covery 9-15' Same as 6-8' wet & 10' 15-16' Sandy Clay (cc) Crange/white, wet; Very stiff End of bering 16' Sound 16' Sound 16' Sound 16' Sound 16' Water table & 10' 69s XRF 2-4' Nothing 6-7' Cu = 14PPM 2n = 20PPM Callected Sample CJCA-5815-6-7-09C (JCA-5815-6-7-09C (JCA-	_	o-4' 1	19-1	,		3-4.5' Silty Sand (SM) grey/tan, Moist, loose, fine grained	
10 - 8-12' 10 - 3	10-8-12' DP-3 3 White/arange, Maistilase, Medium grained 8-9' No Receivery 9-15' Same as 6-8' Well construction Details 15-16' Sandy Clay (CL) Crange/white, wet, Very stiff End of boring 16' Driller could not drill deeper than	5-	૫-જ'	DP-2	4'		5-6' Clayey sand (sc) tanlorange, Moist, dense,	i e
Lister Sandy Clay (CL) Well Construction Details Clange/white, wet, Very stiff End of boring 16' Screen: 8-18' b95 Sand: 8-18' b95 Bentonite: 7-8' b95 Well set 6 18' b95	15-16' Sandy Clay (CL) Orange/white, wet, Very stiff End of boring 16' End of boring 16' Well construction Details 1" Prepacked Screen 1/2 bag of # 2 Sand Screen: 8-18' b95 Sand: 8-18' b95 Bentonite: 7-8' b95 Well set 6 18' b95 Well set 6 18' b95 Driller could not drill deeper than	10 -	8-12'	OP-3	3'		6-8' Sand (SP) white/crange, Maistilesse, - Medium grained 8-9' No Recevery	6-7' CU= 14 PPA Zn= 20 PPA Collected Sample CJCA-SBIS-6-7-09C
End of boring 16' Screen: 8-18' b95 Sand: 8-18' b95 Bentonite: 7-8' b95 Well set 6 18' b95	End of boring 16' Screen: 8-18' b95 Sand: 8-18' b95 Bentonite: 7-8' b95 Well set 6 18' b95 Driller could not drill deeper than	- 15-	12-16'	0P-4	Ч		Wet@10' 15-16' Sandy Clay (CL) Orange/white, Wet,	Well construction Details I" Prepacked Screen 1/2 bag of # 2 Sand
	_ dvill deeper than		**		IV 4	1 1 1 1 1 1 1 1 1 1	End of boring 16'	Screen: 8-18' 695 Sand: 8-18' 695 Bentanite: 7-8' 695 Well set 6 18' 695

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PROJECT NUMBER BORING NUMBER OF 377812 SB16/TW09 SHEET 1

PROJEC				CJUA		Camp Lejeune, NC
ELEVAT	2000		SWY	PMENT HA	& DPT W GROPPO'N GGOD M	U
WATER					START 1030 7/25/09 FINISH 1130	7/25/09 LOGGER 5 Bevily
§E		SAMPLE		STANDARD	SOIL DESCRIPTION	COMMENTS
DEPTH BELOW SURFACE (FT)	NTERVAL	NUMBER AND TYPE	RECOVERY (FT)	PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
-	0-4	26-1	3		0-1 No Recovery 1-4 Clayery Sand (SC), fan, moist, v. dense, vfg	xef 2-41: ND -
ち — -	4-8	21-5	4		dry , loose vfg, few orange -	XRF 4-6': ND
(o =	8-12	-D6-3	3		95-12 Sand w/Silt (SPSM), lt - ovange wet, m. dense, vfg - 12-15 No Recovery 15-16 SAA (9.5-12)	evadera 10' bgs
15 -	12 - 16	16-11	١		-	[C5CA-5616-2-7-09C]
25 -			*1		Boring completed @ 16 bgs	Well construction: 6-16': 1" screen - 0-6': 1" PVC caying - 5-16' Sand 1-5': Bentonite chips
-						PVC Stickup ~ 1.5

WATER LEVELS _____

PROJECT NUMBER BORING NUMBER 377812 3617 SHEET OF \ SOIL BORING LOG

LOCATION Camp Legeurs, NX PROJECT ____ CJU-11 CJCA DRILLING METHOD AND EQUIPMENT KAS DET W/GOODS 54DT START 1440 7/28/09 FINISH 1500 7/28/09 LOGGER 5 BEVULLE

ŠF	SAMPLE		STANDARD	SOIL DESCRIPTION	COMMENTS	
DEPTH BELOW SURFACE (FT)	INTERVAL	NUMBER AND TYPE	RECOVERY (FT)	PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
-	٥-ч		7		0-2 Sutty Sand (SM), d gray, - dense, mout, ofg - 2-5- Clayery Sand (SC), tan,	XRF 2-4: NE
5- -	4-8	06.5	4		dry. V derse _	KRF 4-61: NF
lo -					Goving completed @ 8' bas -	
-						
-						
-						-
						-

CI	12	M	HI	11

PROJECT NUMBER
377812

BORING NUMBER
5618 TW10 SHEET | OF

		OD AN	EQUIF	MENT UA	8 DPT W/ Geoprobe 6610	log la 50 a ili
10000	EVELS		5' bg	5	START 1310 7/25/09 FINISH 145	0 1/25/0 LOGGER - 3 152001.
F		SAMPLE	-	STANDARD PENETRATION	SOIL DESCRIPTION	COMMENTS
SURFACE (FT)	INTERVAL	NUMBER AND TYPE	RECOVERY (FT)	TEST RESULTS 6"-6"-6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY. OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
J. 1	0.4	D\$-1	3	# N	6-1 No Recovery 1-3 Peat (Pt), abrown, mount_ saity sand whom	ike 2-41 : ND
; -	4-8	DE-2-	Ч		gray wlorange, moist, m - dense, vfg	KRF 4-5': ND Water @ 5' bgs
-					11-12 Silty Sand (SM), daray	Sample.
o —	8-12	₽6-3	ч		wet, on dense, little day -	(C)CA S618-2-5-09C
-					_	
-	ę.				boing completed @ 12/1991 -	Well construction:
, C	8				_	2-12' 1" screen
5 –						0-2" 1" PVCcasing
						1-12': Sand
-					ia.	0-11: Bentonte chips
-					-	PVC Stickup ~ 1'
o —					_	,
					_	-
H					-	-
					_	
					¥ .	

CH2M	HIL	L
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PROJECT NUMBER
377812 BORING NUMBER
5619 SHEET 1 OF 1

	ION	Net	Sur	CJCA Leved PMENT KA	DRILLING CONTRACTORSRENA CCO	Camp Lejeune, NC
WATER			7' 120			7/27/89 LOGGER 5 Beville
DEPTH BELOW SURFACE (FT)	INTERVAL	NUMBER AND TYPE	RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
-	0-4	D6-1	3		0-1 No Recovery 1-6 Sand (SP). It gray, dry, - loose, vtg, trace Silt	KRF Z-4': NP -
5 -	4-8	265	4		68 Sand w/sitt (Sr.sm), It _ ovange, wet, m. dense _	XXF 4-6: 100 -
10 -					Boring completed @8' bgs -	Sample: [CJCA-SB19-2-7-09C]
-						-
					-	

CH	121	VIII	-11	11

PROJECT NUMBER
3717812

BORING NUMBER
5020 / TWII SHEET | OF I

PROJEC	т	(10.	11,	(JCA	LOCATION	amp legeune, NC
ELEVAT			9		DRILLING CONTRACTOR SAEDACLO	1 3
			-	bas	3 DPT W/ Geoprobe 6610 DT	710010
WATER		-		ng)	START 1600 7/25/09 FINISH 165	175/09 LOGGER - Deville
§€		SAMPLE		STANDARD PENETRATION	SOIL DESCRIPTION	COMMENTS
DEPTH BELOW SURFACE (FT)	INTERVAL	NUMBER AND TYPE	RECOVERY (FT)	TEST RESULTS 6"-6"-6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
-	0-4	.06-1	4		0-2 Silty Sand (SM), a gray, - moist, work, some OM, ifg - 2-4 Sandy Clay (CL), gray w/	XEF 2-4' NO -
5-	4-8	702	4		orange, moist, Stiff, vfg - 4-11 Sand (SP). It gray, dry,	KRF 4-6' ATO
-					@95'.	-
10 -	8-12	D€-3	Ч		ovange, wet, dense, vfg _	water@ 9.5' bas
	12-16	DF.4	4		15-16 Sandy Clay (CL), d.gray, - wet, soft, vfg, low plasticity	
15 -					16-20 No Recovery	CJCA-5620-2-7-09C -
-	16-20	DR-5	0			CJCA-56205-2-7-096
20-						
-					Boring completed@ 20' bgs -	Well construction -
-					-	0.8" 1" PVC caring -
-					l-	7-18: Sand -
-						G-7' Bentonite chips
					-	PVC Studiup: ~1.5"
_					-	

PROJECT NUMBER 377812	BORING NUMBER	SHEET \	OF \
	SOIL BORING LOG		

PROJECT _____CTO-11 CJCA Legenne, NC Camp LOCATION -ELEVATION Not surveine d DRILLING CONTRACTOR _ SAEDA (CO DRILLING METHOD AND EQUIPMENT HAS DOT W/ GEODROGE 54 DT START 1130 7/28/09 FINISH 1140 7/28/09 LOGGER -5 Beville WATER LEVELS ____ STANDARD PENETRATION TEST RESULTS DEPTH BELOW SURFACE (FT) SAMPLE SOIL DESCRIPTION COMMENTS RECOVERY (FT) NUMBER AND TYPE DEPTH OF CASING, DRILLING RATE, SOIL NAME, USCS GROUP SYMBOL, COLOR, NTERVAL MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION 6"-6"-6" MINERALOGY (N) 0.3 Clayery Sand (SC) tan dry ... 1-90 0-4 XXF 2-4" NX 3-8 Sand (SP), It gray, dry, Loose, Ag XRF 9-6" NR 5 XXF 6-7 : PUR 4 DE-2 4-8 water @ 7' bas Jample: CJCA-5621-2-7-09C W

PROJECT NUMBER
377812

BORING NUMBER
5622 | TW12 SHEET | OF I

PROJEC	т_(TO-1	1 (JCA	LOCATION	amp legennes Ni
ELEVAT	COLUMN TO A STATE OF THE PARTY	-	SULLVE	Y	DRILLING CONTRACTOR SAEDACCO	, J
DRILLIN	G METH			MENTH	A & DPT w/ Geographe (dol)	-1051
WATER	LEVELS		10' ba	5	START 0830 7/25/09 FINISH 0956	1126/09 LOGGER -) Beville
<u></u> }∈		SAMPLE		STANDARD	SOIL DESCRIPTION	COMMENTS
DEPTH BELOW SURFACE (FT)	INTERVAL	NUMBER AND TYPE	RECOVERY (FT)	PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
-	* D				0-0.5 No Recovery	-
	0-4	P6-1	3.5		05-15 Peat (Pt), d. brown, moist whilt & day, some OM -	XCF 2-41-NA
5 -					1.5.4 Clayey Sand (SC), d.tan,	KRF 4-6'- Pb= 13
	4-8	26-5	3.5		- Show in , and dish, and in	LEF 6-7'-96=11
					loose-m. dense, trace sitt -	
10 -	8-13-	DP-3	4		9.5-17.5 SAR w/more sut, wet	mater @ 10, pdz
	12-16	DP-4	1 14		14. orange, wet, m. dense, vfg = 19.5-20 Silty Sand (Sm),	-
15 -					digray, wet, dance, utg	_
	11-21	D8-5	Д		frace clony	-
20 -	-				-	-
					Boring completed @ 20' bgs.	Well construction: _ 8-18': 1" Screen -
						0-8' i" PVC caring -
	-					7-18: Sand -
-						6-7 Bentonte chips -
	-					prostickup. ~1.5'
	-					Sample: CTCA-9622-4-7-090

PROJECT NUMBER
317812

BORING NUMBER
5623

SHEET | OF |

ROJEC	т	GT0-11	C	sca	LOCATION CO	ump Lejeune, NC
ELEVATION NOT SOLVENING ALL					DRILLING CONTRACTOR SAEDACLO	1 J
	G METH		EQUIF		START 150 7-28-09 FINISH 1205	7-23-09 LOGGER 5. Perille
		SAMPLE		STANDARD	SOIL DESCRIPTION	COMMENTS
DEPTH BELOW SURFACE (FT)	20		RECOVERY (FT)	PENETRATION TEST RESULTS	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS,
SURF	INTERVAL	NUMBER AND TYPE	(FT)	6"-6"-6" (N)	OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	TESTS AND INSTRUMENTATION
-					0-1 No Revovery	
-	0.4	1-90	3		1-4 Silty Sand (SM), daray, - mout to each, m. dense, -	KRF 2-31-101-
					vfa vfa	water @ 3.5' bas
5-					4-5 No Recovery -	
	4-8	DR-2	3		5-7 SAA (1-4)	
10					7-8 Silty Sand Han, wet.	
					v. dense-dense, vfg: little day	
ja -					V. dence dence, vigi and say	2
	1				Boring completed @ 8' bgs	<u>u)</u>
				1		
	1				-	
-	1					
	-				-	
	-	-			-	-

CH	21	VII-	41	LL

PROJECT NUMBER

SB2H /TW13 SHEET | OF 1

377812 SOIL BORING LOG

PROJECT	10-1	1 (JCA		Camp Legeuns, NC	_
ELEVATION _		SMIN		DRILLING CONTRACTOR SAEDACO	9	_
		40	A CONTRACT OF THE PARTY OF THE	A & DPT W/ Geoprobe Go 10 DT	7/00/-0 5 0-11.	_
WATER LEVELS	S	1 1) as	START 0925 7/24/09 FINISH 1025	LOGGER J WANTE	_
ð£	SAMPLE		STANDARD PENETRATION	SOIL DESCRIPTION	COMMENTS	
DEPTH BELOW SURFACE (FT)	NUMBER AND TYPE	RECOVERY (FT)	TEST RESULTS 6"-6"-6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION	
0-4	26-1	3		gray, dry, vidense, vtg -	XRF 2-4": Zn 299	- 1
5 - 4-8	hr-2	2-1		3.5-6 Sand w/Silt (SP SM), gray w/orange, dry, loose-m dense, fg-vfg	XRF 4-6': ND	
10 - 8-12	. DP-3	1.5		6-9 SAR, Ltgray, wet - 9-95 Silty Sand (SM), black, wet, m. dense, vfg, tottle day	water @ 7' bgs	-
15 - 12-16	DP.41	ч		95.12 No Recovery 12-155 Sand (SP), tan, wet, on dense, fg, little	Sample: [CSCA-5624-2-4-09C]	-
20-				Silt 15.5-16 Silty Sand (SM), d.gray, wet, v.dame, vfg: trace clay Boring complete @ 16' logs.	Uell construction info 5-15': I" screen 0-5'' I" PVC casing 4-15' Sand 0-4' Bentonite chips	-
					PVC strukup. ~1.3'	10 m

PROJECT NUMBER
317812 BORING NUMBER
3625 SHEET 1 OF 1

PROJECT CTO-11 CSCA		LOCATION _C	amo Levenin	I NC
ELEVATION Not surveyed	DRILLING CONTRACTOR		,	
DRILLING METHOD AND EQUIPMENT HA				
WATER LEVELS	START 1320 7/29	M FINISH 1330	7/28/09 LOGGER	5. Beville

€F	3	SAMPLE		STANDARD	SOIL DESCRIPTION	COMMENTS
DEPTH BELOW SURFACE (FT)	INTERVAL	NUMBER AND TYPE	RECOVERY (FT)	PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
	0-4	26-1	4		0-4 Suty Sand (SM), tan, - moist, dense, vfg - 4-8 Sandy Clay (CL), gray - wlorange, moist, vistiff, vfg	XXF 2-41: OVF
5-	4-8	DE-2	4		wlorange, moist, vistiff, vig_	XRF 4-6": NX XRF 6-7": NR
10-					Boring computed @ 8'bgs	Sample: [C5CA-5625-6-7-09C]
	-					-

PROJECT NUMBER
377812

BORING NUMBER
5626/TW14 SHEET | OF 1

PROJECT	CTD-11 CJCA		LOCATION CAM	p Lejeune NC	
ELEVATION _	Not surveyed	DRILLING CONTRACTOR _		1 3	
DRILLING ME	THOD AND EQUIPMENT _	HA & DPT W/ Geoprobe Go	610 DT		

il' bas	START 1655 7/23/09 FINISH 5845	7/24/09 LOGGER 5 Beville
DENET		COMMENTS
RECOVERY (FT)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
1.5	2.5-6 Clayery Sand (SC), gray - worange, moust, m.dense, vfq	XRF 2-4": None detected
ц	6-7 Sandy Clay (CL), gray - wlorange moist, Stiff 8-95 No Recovery	XRF 6-71 : RS= 13
2.5	95-12 Sand W/Sut (SP-SM), gray, wit; on dense, vfg-fg	water@111 bgs
2	14-18 SAA (9.5-12) 18-20 Silty Sand (SM), d gray; wet, m. dense, vfg	
4		Sample: [CSCA-SB26-4-7-09C]
	Boring completed @ 20 bgs	well construction:
		0-10': I" PVC caying 9-20: Sand 8-9': Bentonite chips PVC Stickup ~ 1'
	STANDAI PENETRAL TEST RESULT 6°-6°-6 (N)	STANDARD PENETRATION TEST SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY 1.5 0-2.5 No recovery 2.5-6 (Lagry Sand (SC), gray wistangs, mout, m.dense, vfg 6-7 Sandy (Lay (W), gray wistangs, mout, stiff 8-9.5 No Recovery 9.5-12 Sand wish (St-Sm), gray, wit; m dense, vfg-fg 12-14 No Recovery 14-18 SAA (9.5-12) 18-20 Sidty Sand (Sm), d gray; west, m. dense, vfg

PROJECT NUMBER

BORING NUMBER

SHEET

OF

PROJEC	т	CTO.	11 (SICA	LOCATION	amp Legennes NC
ELEVATI		201012		veged	DRILLING CONTRACTOR SAEDACLO	- ν - δ
			EQUI	PMENT HA	3 DFT W/Geoprobe 54 DT START 1340 7/28/09 FINISH 1350	7/2/M 5 6 . 11
WATER	LEVELS		=	1	START 1910 1/28/09 FINISH 1350	7/28/M LOGGER 5 Beville
Ş€	-	SAMPLE		STANDARD PENETRATION	SOIL DESCRIPTION	COMMENTS
DEPTH BELOW SURFACE (FT)	NTERVAL	NUMBER AND TYPE	RECOVERY (FT)	TEST RESULTS 6"-6"-6"	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
300	Z	ZA	品币	(N)		
-					0-3 Silty Sand (SM), gray.	-
-	0-4	D6-1	Н		moit, dense, vfg. trace day-	XRF 2-41: AJR -
-	1				3-8 Clayey Sand (SC), gray wlorange, mout, v. Stiff, vfg, trace silt	-
			-		gray wlorange, mout	XRF 4-6" NR -
5-			4		v. Stiff, vfg, trace get -	
-	4-8	46.5	4		3,	XRF 6-71: NR
1	1					-
1					Boving completed @ 8' by	Sample: -
10-	-				_	(C3CA-5827-4-7-09C) -
	-				-	10091982111010
1	-				-	-
	-				-	-
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PROJECT NUMBER
317812 BORING NUMBER
S628 /TW15 SHEET | OF |

PROJEC	TC	10-11	, ()	CA	LOCATIONC	amp Lejeune, NC
ELEVAT			Sun		DRILLING CONTRACTOR SAEVACLO	, ,
	IG METH LEVELS		DEQUIF		* DPT W/ Geographe (6010 DT	71:102 50
					START 1415 7/23/09 FINISH 1450	a State of the Control of the Contro
JE.		SAMPLE		STANDARD PENETRATION TEST	SOIL DESCRIPTION	COMMENTS
DEPTH BELOW SURFACE (FT)	INTERVAL	NUMBER AND TYPE	RECOVERY (FT)	6*-6*-6* (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
-					0-1 Peat (Pt) d. brown , dry	-
-	4-6	1.9(1	ч		5 andy 1-7 Clayey Sand (SC), gray -	XRF 2-4 : AS: 12, Pb: 17 -
5 -					Worange, moist, v. dense, vfq -	XRF :1-0: None detected -
-	4-8	Df 2	4		7-15 Silty Sand (SM) gray. moist, dense, ufg. Nittle day, percent silt decreases ~ 13:	XRE 6-71: AS: 12
10 -	8-12	263	٦		15-115 Clayery Sand (Sc), d. gray, - wet, dense, trace gith	water @ 10' bgs _
15 -	12-14	26-4	4		tan, wet, loose, fg	-
-	16-20	118-5	ц		-	Sample - [CJCA-5623-2-4-09C]
20 -					Borng completed @ 20' bag -	Well construction:
-						8-18': 1" Screen - 0-8': 1" PVC caring - 7-18' Sand _ 6-7': Bentonite chips _ PVC Stukep: ~ 1.5' ags _

PROJECT NUMBER

BORING NUMBER 5829

74

SHEET | OF |

PROJECT _ CO-11 CSC	A			LOCATION	Camo	Lejeures	0.10
ELEVATION Not Surveyed		ORILLING CO	NTRACTOR	SAEDALLO		The state of the s	100
DRILLING METHOD AND EQUIPMENT	THA :	DPT W	(Geopra)	ae 540T			
WATER LEVELS -				8/19-11-11	115 7/28/20	1,00000 5 (See it

SF		SAMPLE STANDARD SOIL DESCRIPTION				COMMENTS
SURFACE (FT)	INTERVAL	NUMBER AND TYPE	RECOVERY (FT)	PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
-	0-4	D8-1	3		0-1 No Recovery - 1-82 Sitty Sand (5M), d -	XRS 2-41: Pb 15
4 -		D8-5	4		gray, mout, little on, -	XXF 4-6": As 9, En 20
- 8	4-8				2-8 Sandy Clay (SC), gray- wlovange, moist, v. stiff, vtg -	KRF 6-7: 20:13
-					Boving completed @ 8' bgg -	Sample:
-						CJCR-5629-2-7-09C
_					_	
1 1 1					-	<u>s</u>
_					_	
_					_	e.
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-					-	
-				2	_	×

PROJECT NUMBER

317812

BORING NUMBER

5630 / WILL SHEET | OF |

	01.4	_		LOCATION	Camp Legenne, NC
					3
				START 1205 7/23/19 FINISH 1240	7/23/09 LOGGER S.Beville
	SAMPLE	-	STANDARD	SOIL DESCRIPTION	COMMENTS
INTERVAL	NUMBER AND TYPE	RECOVERY (FT)	TEST RESULTS 6"-6"-6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION XRF readwas in com
0-4	₽6.1	ч		1-4 Chayey Sand (SC), gray -	XRF 2-41: Zn 21, Pb 19
4.8	N-2	4		4-7.5 Sandy Clay (CL), gray	XRF 4-6: 20 19, Pb 20
8-12	DP 3	4		trace sitt 7.5- 9 Clayer Sand (SC), gray, moist, m. dense little sitt, vfg	ivater @ 9.5' bgs
12.16	D8 4	ч		9-16 Sand with Sitt (SPSM); It gray, wet, M. dense, vfg. fg. Color is d.gray @	Sample: CSCA S630-2-7-09C
				Boring completed @ 16 bys	Well construction: 7-17': I" Screen 6-17': Sand 0-7': I" PVC casing 5-6': Bentocide chips
					prostuling ~8"
	INTERVAL	SAMPLE SAMPLE NUMBER AND TYPE	IG METHOD AND EQUIP LEVELS 4.51 SAMPLE VAND TYPE AND TYPE AND TYPE AND TYPE (F)	SAMPLE SAMPLE SAMPLE STANDARD PENETRATION TEST RESULTS 6'-6'-6' (N) 4-8 N.2 4	DRILLING CONTRACTOR SAEDACLO IGNETHOD AND EQUIPMENT HAS DET WIGEOPOOL GOLD TO LEVELS 9.5' bys START 1245 7/13/19 FINISH 1240 SAMPLE STANDARD PENETRATION TESTIS RESULTS SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY MINERALOGY Del 4 Clayey Sand (SC), gray Worange, dry to mouth, v. dence, vfg 4-7.5 Sandy Clay to mouth, v. dence, vfg 4-7.5 Sandy Clay (CL), gray Worange moust, v.stiff, trace silt 7.5 9 Clayey Sand (SC), gray moist, m. dence, little silt, vfg 9-16 Sand widh Silt (SP-Sm); It gray, wet, m. dence, vfg-fg, Color is d.gray @ 14-16'

PROJECT NUMBER
377812 BORING NUMBER
5631 SHEET | OF |
SOIL BORING LOG

PROJECT .		10-11		ICA	LOCATION	amp Lyeune, NC
ELEVATION					DRILLING CONTRACTOR	*
DRILLING N	METHO	D AND	EQUIF	MENT HA	is DPT w/buprobe	9 4 11
WATER LEV	VELS _				START 0930 7/23/09 FINISH 0950	1/23/09 LOGGER - Beville
§F.	SA	MPLE		STANDARD PENETRATION	SOIL DESCRIPTION	COMMENTS
DEPTH BELOW SURFACE (FT)	INTERVAL	AND TYPE	RECOVERY (FT)	TEST RESULTS 6"-6"-6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
-0	-4 D	8-2	4		0-2 Sitty Sand (SM), gray w/ - ovange, dry, dense, vfg, trace dry, 2-8 Clayery Sand (SC), gray w/ - ovange, mout, v. dense, vfg trace Silt - increased depth	XRF 4-6'- Pb 16 - XRF 6-7'- 22.55
					Boring completed @ 8' bgs	Jample: CJCA-5631-4-7-09C CJCA-56310-4-7-09C

PROJECT NUMBER
377812

BORING NUMBER
5632 / TWIT SHEET | OF 1

PROJECTCTO:11 CTCA	LOCATION Camp Lyonne No
ELEVATION _ Not surveyed	DRILLING CONTRACTOR _ SAEDACCO
	- DPT W/ PaverProbe 9500 VTR
11/ ha	1115 - 1201

SF.	SAMPLE STANDARD PENETRATION				SOIL DESCRIPTION	COMMENTS
SURFACE (FT)	INTERVAL	NUMBER AND TYPE	RECOVERY (FT)	PENETHATION TEST RESULTS 6"-6"-6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
	0-4	DP-1	3.5		6 round surface - Pine needles i cleared vegetation - O-1 Peat (Pt), black, dry, Sandy, OM	(RF 2-4": Zn 17, As 40, Pb= 10
5 — -	4.8	₩2	4		1-7 Clayer Sand (SC), gray w/ _ orange, dry, v. dense vfg _ 7-8 Silty Clay (U), gray w/orang	XRF 4-6: 2n. 29, As 12, Portuin
10 -	8-12-	D8-3	3		mout: 5tiff; little sand - 8-9 No Recovery - 9-11 SAA (7-81)	water @ 11' bgs
- - -	12:16	W.11	ч		11-18 Sitty Sand (SM), gray wet, m. dange, trace day, vfg - 18-20 Clayey Sand (SC), d brown, wet, loope, vfg, little	
-	1620	D85	4		₹illt	Sample: [CJCA-3632-2-7-09C]
					Boring completed @20' bys -	well construction: 9-19: I" Sureen
-					-	8-19': Sand 7-8': Bentonite chips 0-9': 1" PVC casing PVC Stick up ~ 2'
-					_	

PROJECT NUMBER 377812	BORING NUMBER	SHEET \	OF
71	SOIL BORING LOG		

PROJECT CTO-11 CT(A Camp LOCATION ELEVATION NOT SULVEYED DRILLING CONTRACTOR _ SAEDACIO DRILLING METHOD AND EQUIPMENT HA & DOT W/ GEOPGODE START 0320 7/23/09 FINISH 0845 7/23/09 LOGGER 5 Gentle WATER LEVELS 10' 643 STANDARD PENETRATION DEPTH BELOW SURFACE (FT) SAMPLE SOIL DESCRIPTION COMMENTS RECOVERY (FT) TEST DEPTH OF CASING, DRILLING RATE. NUMBER AND TYPE SOIL NAME, USCS GROUP SYMBOL, COLOR, NTERVAL DRILLING FLUID LOSS, MOISTURE CONTENT, RELATIVE DENSITY TESTS AND INSTRUMENTATION OR CONSISTENCY, SOIL STRUCTURE, 6"-6"-6" (N) MINERALOGY Ground surface - pine needles 1-Small trees 15 XRF 2-41: Zn=19 ppm 0-4 DP-1 0-25 No Rewvery Drilling rate = 41/4 min 2.5- 6 Clayery Sand (SC), tan, dry. v. dense, vfg KRF 4-6: 21= 25 ppm 5 Ph: 19 ppm D8-7 4 6-10 Sandy Clay (CL), gray w 4-8 * XRF 6-7' Pb: 1700m orange + ved v. stiff, vfq. dry to Drilling vate: 81/10 min moist 10-12 Suty Sand (SM), gray, De 3 8-12 water @ 10' bas 4 10 wet, m. dense, vfg Boring completed @ 12' bgs. sample: CJCA-5833-4-6-09C 15 20

PROJECT NUMBER
377812 BORING NUMBER
5634 SHEET OF

PROJECT CTO-11 CJCA		OCATION —	Camp	Legenne. NC
ELEVATION Not Surveyed	DRILLING CONTRACTOR			1
DRILLING METHOD AND EQUIPMENT				
WATER LEVELS	START 1025 1/27/09	FINISH 1040	7/28/09	LOGGER 5 Bev 110

ŠF	SAMPLE		STANDARD SOIL DESCRIPTION		COMMENTS
DEPTH BELOW SURFACE (FT) INTERVAL	NUMBER AND TYPE	RECOVERY (FT)	PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
-	26-1	4		2-4 Clayey Sand (SC), gray -	xef 2-4: Pb 20
5-4-8	ne 2	4		4-8 Silty Sand (SM), orange.	XRF 4-6: ND
10				Boring completed @ 8' bgs -	Sample: [CJCA-S634-2-4-09C]

PROJECT NUMBER

SB35/TW18

SHEET

OF

SOIL BORING LOG

Š€		SAMPLE		STANDARD	SOIL DESCRIPTION	COMMENTS
DEPTH BELOW SURFACE (FT)	INTERVAL	NUMBER AND TYPE	RECOVERY (FT)	PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
-	0-41	DP-1	3		0-1' No Recovery 1-2' Silty Sand (SM) black/brown, Moist, loose, - Medium grained 2-4' Clayey Sand (SC)	Hand Auger Cleared 0-5' bgs
5-	4-81	DP-2	4		White/grey, Moist, dense, fine grained 4-7' Sandy Clay (CL) grey with crange Streaks, - Moist, Stiff	water table at 9,5' bgs
[6 -	8-12	10p-3	ч′		7-8' Clayey sand (Sc) Same as 2-4' bas 8-10' Silty sand (SM) tan/grey, Maist, loose,	XRF 2-4' Pb=19PPM Zn=12PPM AS=10PPM (u: 30PPN 4-6' Pb=10PPM Zn=3PPM
ls -	12-16'	DP-4	ч′		Medium grained, Wet 6) 9,5' 10-16' Sand (SP) gver/crange, Wet, Medium _ dense, Medium grained	AS- 2PPM CU= 11 PPM - 6-7' Pb= 3PPM Cu= 7PPM - 2n = SPPM - Cellected Sample CJCA- SB3S - 2-4-09C-MS CJCA-SB3S-2-4-09C-SD - O 0840.
-					-	Lastruction Details well set at 19' b9s. Using 1' prepacted Screen_ 1/2 bag # 2 Sand Screen 9-19' b9s
-					-	Sand 9-19' b95 Bentonite 7-9' b95 Driller could not drill - deeper than 16' b95, -

PROJECT NUMBER
377812 BORING NUMBER
5636 SHEET OF

	SOIL BORII	NG LOG
JECT CTO-11, CJUA	LOCATION	amp lejeune, NC
VATION Not Surveyed	DRILLING CONTRACTOR SAEDACCO	, J
LING METHOD AND EQUIPMENT HA	> DPT W/Geoprobe 54DT	
ER LEVELS 7 bas	START 0905 7/28/09 FINISH 0920	7/28/09 LOGGER 5 BEVILLE
SAMPLE STANDARD	SOIL DESCRIPTION	COMMENTS
SURFACE (FT) SURFACE (FT) SURPLE STANDARD PENETRATION TEST RESULTS RECOVERY (N) SURPLE STANDARD PENETRATION TEST RESULTS OF 4-6-9-6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS,
NTER SOLUTION OF S	OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	LRF measurements in pom
0 = 24 LS	13-3 Sin S 1/500 -1500	ALL MERCHENERI DE PAN
4 1 1 1	0-3 Sitty Sand (SM), gray, _	
0-4 80-1 4	mout, denge, vfg	XRF 2-4' 100
	3-4 Clayey Sand (SC), gray	
; -	worange, moist, v. dense, vfg	XXF 4-6' 325, Pb 18
4-8 08-2 4	4-7 Sandy Clay (CL), gray -	WRS 6-7' AS 8
19-017	wlarange, moist, Stiff, ufg -	water @ 7 bag
	7-8 Silty Sand (SM), gray,	S. I
s	wet, in dense, if _	Sample Company Hart 1991
	2 111 0 01	[CJCA-S036-4-7-09C]
-	Borns comploted @ 8, pos.	-
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7	1	

PROJECT NUMBER 377812 BORING NUMBER 5837/TW19

SHEET

OF /

PROJECT	CTO-011		- LOCATION Camp Leseune, NC
ELEVATION	Not Surveyed		SEADACCO
		Power probe 9500	
WATER LEVE	LS 11,5' 695	START 7/24/09	915 FINISH 7/24/09 0945 LOGGER D. BYCWI/CL

ŠF.		SAMPLE		STANDARD	SOIL DESCRIPTION	COMMENTS
DEPTH BELOW SURFACE (FT)	PENETRATION TEST RESULTS SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY		INTERVAL NUMBER AND TYPE RECOVERY (FT)		DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION	
-	0-41	DP-1	2'		0-2' No Recevery 2-4.5' Silty Sand (SM) Grey/brown, weist, 1005e, Medium grained	Hand Auger cleared 0-5' b95
5 -	4-81	19-2	4'		4.5-5.5' Clayey sand (SC) - tan/grey, Maist, Medium - dense, fine grained - 5.5-8' Sandy Clay (CL) Grey/crange, Maist,	
10-9	8-12	DP-3	2′		Stiff 8-10' No Recovery - 10-10.5' Sandy Clay (CL) - Some as 5.5-8' -	water table @11.5 695
15 -	12-16	92-4	2		10.5-11' (layey sand (sc) - Same as 4.5-5.5' - 11-14' Sand (sp) - White with crange streams Moist, Medium dense,	XRF 2-4' Pb= 12 PPM Zn= 7 PPM Cu= 17 PPM
					medium grained. wet at 11.5' 14-16' No Receiry	U-6' Pb= 73 PPM ZN= S PPM CU=12 PPM AS= 2 PPM 6-7' Pb= 123 PPM AS= 31 PPM
20-				*	Oriller could not fush further with hecovery End of Boring Log 16'	Zn = 17 ppM Cu = 43 ppM well construction
					Collected Sample CJCA-5837-6-7-09C @ 0950	set well Tw19 using 1" pre facted screen I bag cf Sand Screen; 8-18' bgs Sand: 8-18' bgs Bentonite: 6-8' bgs Well set at 18' bgs
-					_	

WATER LEVELS 1/A

PROJECT NUMBER 377812 BORING NUMBER

SHEET

OF /

SOIL BORING LOG

START 7/24/00 0845 FINISH 7/24/09 0850 LOGGER D. 138 CLUS /CLT

PROJECT	CTO	7-011		LOCATION	Cant	Leseune, NC	
ELEVATION _	Not	Surveyed	DRILLING CONTRACTOR				
DRILLING ME	THOD AND		verprobe 9500 VTK				

DEPTH BELOW SURFACE (FT) SAMPLE STANDARD PENETRATION SOIL DESCRIPTION COMMENTS RECOVERY (FT) TEST NUMBER AND TYPE SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY DEPTH OF CASING, DRILLING RATE. NTERVAL DRILLING FLUID LOSS. TESTS AND INSTRUMENTATION OR CONSISTENCY, SOIL STRUCTURE. 6"-6"-6" (N) MINERALOGY No Recevery 0-21 Hand Auger Cleared 2-3' Silty Sand (SM) 0-5' 695 2' 0-41 01-1 Black, weist, logse, Medium grained 3-5.5' Cluyer Sound (SC) light everylaringe, Moist, Medium dense, fine grained 5 4-81 11-2 5.5-8' Sandy Clay (CC) light grey with crange Streats, Moist, Stiff End of Boving 8' Collected Sample CJCA-5838-2-4-09C @6850 XRF Pb= 173 PPM ZN= 105 PPM AS = 10 PPM (u = 79 PPM 4-6' Pb= 73PPM 2n= 21 PPM AS= 12 PPM Cu= 23 PPM 6-7' Pb = 3c PPM 2n = 18 PPM AS = > PPM Cu= 17 PPM

PROJECT NUMBER 377812

BORING NUMBER
SB 39/TW 20 SHEET

OF !

SOIL BORING LOG

PROJECT CTO-OIL

LOCATION CAMP Lejeune, NC

ELEVATION Not Surveyed DRILLING CONTRACTOR SAEDACCO

DRILLING METHOD AND EQUIPMENT Power Probe 9500 UTR

WATER LEVELS 10'695 START 7/23/69 (640 FINISH 7/23/69 1700 LOGGER D. Brown / CLT

8F		SAMPLE		STANDARD	SOIL DESCRIPTION	COMMENTS
DEPTH BELOW SURFACE (FT)	INTERVAL	NUMBER AND TYPE	RECOVERY (FT)	PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
-	0-41	09-1	4'		0-0.5 Silty Sand (SM) brown/black, Moist, Medium clense, Medium grained 0.5-1.5' clayer Sand (Sc) light grey/crange, Moist,	Hand Auger Cleared 0-5' b95,
5 – - -	4-8'	DP-2	ų'		dense, fine grained lis-7' Sandy Clay (CL) — grey/black, Moist, Stiff - 7-8' Clayey Sand (SC) —	
0_	8-12	DP-3	ų′		light grey/white, Mcist, Medium dense, wedium grained. 8-12' Silty Sand (SM) white/grey, Mcist, Icose, Medium grained.	Water touble @ 10' 695 XAF 2-4' Pb=7PPM As=1PPA
- - - کا	12-16	рр-ч	3'		12-13' No Recovery 13-14' Clayey Sand (Sc) white/grey, wet, Stiff	2n=12PPM 4-6' Pb= 3PPM As=2PPM Cu=12PPM 6-7' Cu= 15 PPM Pb= 2 PPM
-		*1			14-16' Sand (SP) Grey, wet, lcose, Medium grained.	well Construction For CJCA - Tw 20 well set at 17' b95 using 1" pre packed screen Screen: 7-17' b95
-					Collected Sample CJCA-5B39-2-4-096 @ 1700	Sand: 6.5-17' bgs Bentonite: 4.5-6.5' bgs Used I bag of Sand.

PROJECT NUMBER BORING NUMBER 377812 SHEET OF (

PROJECT CTO-II CJCA	LOCATION	Camp Legenne, NC
ELEVATION (Vot Surveyed	DRILLING CONTRACTOR SAEDACCO	
DRILLING METHOD AND EQUIPMENT		
WATER LEVELS		00 7/27/09 LOGGER S. BENILLE
SAMPLE STAN	IDARD SOIL DESCRIPTION	COMMENTS

3		SAMPLE		STANDARD	SOIL DESCRIPTION	COMMENTS
SURFACE (FT)	INTERVAL	NUMBER AND TYPE	RECOVERY (FT)	PENETRATION TEST RESULTS 6"-6"-6"	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION	
S	Z	ZA	H.F.	(N)	MINERALOGY	KRF measurements in ppm
	0-4	761	3		0-1 No Recovery 1-2 Clayer Sand (Sc), gray, - moist, dense, vfg -	KRF 2-4" ND
5 - -	4-8	DP-2	4		2-7 Sandy Clay (CL), gray - wlorange, mour, stiff, vfg - 7-8 Sitty Clay (CL), gray.	XRF 4-6 Za19, 1014 XRF 6-71 Za14, Pb23
10					moist, m. Stiff, trace Sand -	Sample:
-					-	
-						
-					-	
	-					-
	+					-

PROJECT NUMBER 377812 BORING NUMBER

5841/TW21 SHEET

OF

SOIL BORING LOG

CTO-Oll PROJECT

SAEDACCO

Camp Lejeune, NC

Not Surveyed _ DRILLING CONTRACTOR _

DRILLING METHOD AND EQUIPMENT POWER Probe 9500 UTR
WATER LEVELS 10.5' 695 START 7/23/09 1500

START 7/23/09 1500 FINION 7/23/09

	LEVELS			1		19 193 LOGGER P. DICUM/CLT
ØE		SAMPLE		STANDARD PENETRATION	SOIL DESCRIPTION	COMMENTS
DEPTH BELOW SURFACE (FT)	INTERVAL	NUMBER AND TYPE	RECOVERY (FT)	TEST RESULTS 6"-6"-6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
-	оч'		3'		0-1' No Recovery 1-2' Silty Sand (SM) brown/black, Moist, medium dense, medium	Hand Auger cleared 0-5' bgs
5 - -	ų-8'	09-2	4'		grained. 2-5' Clayer sand (SC) lightgrey/moist, dense, Medium grained, 5-9' Sandy Clay (CL)	Water table @ 10.5' bgs
0 -	8-12	DP-3	4'		9rey/crange, Moist, Stiff 9-11' Clayey Sand (sc) grey/white, Moist, dense, Medium grained	water table of 1013 bys
5 –	12-16	DP-4	41		ll-16' silty sand (5M) grey/white, wet, loose, - Medium grained.	XRF and low
-					-	RRF 2-4' Cu= 1c PPM 4-6' Ph= 1c PPM As=4 PPM Cu=17 PPM Zn=12 PPM 6-7' Pb=3 PPM As=4 PPM Zn=11 PPM Cu=7 PPM
-					Collect Sample - CJCA-SB41-4-6-09C - @ 1525	well construction Details used I" Pre Packed Screen screen; 6-16' bgs Sand: 6-16' bgs Bentonite: 4.5-6' bgs used I bag of Sand

PROJECT NUMBER
377812

BORING NUMBER
5642

SOIL BORING LOG

PROJECT CTO-11 CSCA LOCATION Camp Ligiture NC

ELEVATION Not Surveyed DRILLING CONTRACTOR SAEDACCO

DRILLING METHOD AND EQUIPMENT HA & DET WI Geograph 54DT

WATER LEVELS START 0815 7/23/09 FINISH CG30 7/28/09 LOGGER 5. Geville

&F		SAMPLE		STANDARD	SOIL DESCRIPTION	COMMENTS
DEPTH BELOW SURFACE (FT)	INTERVAL	NUMBER AND TYPE	RECOVERY (FT)	PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
1-	0-4	D(-1	3.5		0-05 No Recovery 0.5-4 Clayery Sand (SC), gray,- dry, v. danse, vfg	
5 -	4-8	N-7	4		4-8 Clay (CL), gray worrage most, v. stiff, trace sult is and	XRF 4-6' Zn 25, Plo 19 XRF 6-7' Zn 26, Plo 22
<i>to</i> -					Boring completed @ 8' bgs	Jample [CJCA-J642-2-7-09C]
-	-					

PROJECT NUMBER
377812 BORING NUMBER
5643/TW22 SHEET OF 1

SOIL BORING LOG

PROJECT	CTU-11	CICA	LOCATION Camp Lycums N	ıc
ELEVATION _	Not	Surveyed	DRILLING CONTRACTOR SAEDA CCO	
			HA + DET W/ PowerPiuse 9500- VTR	
WATER LEVE	LS13	bas	START 1555 7/22/04 FINISH 1655 7/22/09 LOGGER 5	Berille

OF.	-	SAMPLE			SOIL DESCRIPTION	COMMENTS	
DEPTH BELOW SURFACE (FT)	NTERVAL	NUMBER AND TYPE	RECOVERY (FT)	TEST RESULTS 6*-6*-6* (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION	
۵ω	=	Z∢	E.F.	(14)	Ga 15 (See See 1)	KRF measurements in ppm	
	0-4	D(-1	3		Groundsurface- Small regetation 0-1 No recovery 1-4 Sand (SP), tan, dry, v. dense, vfg-fa	XRF 2-41: Zn 18	
5 -	4-8	Df-2	4		4.14 Sandy Clay (CL), gray w/ _ ovange, moist, v. stiff, sand _ content developes w/depth _	XRF 6-7 - 2018, Pb17	
- 04	8-12	3,63	4	,	11-13 Sitty Clay (a), tan, wet m. 5tiff, Some Sand - 13-15 Sitty Sand (SM), gray, wet	Sample: (C)(A-SBA3 G-7-09C)	
(5 -	12-16	De-4	ч		m. dense, vfg 15-17 Sity Sand (SM), black, wet. dense, & Little clay, some wood fragments	water @ 13' bgs	
	1630	26.2	4		d.gray, wet, little sitt, loose _ 20:22 Sand w/Sitt (SP SM) gray, wet, loose, vfg -		
20 -	20-22	DP-6	2				
					Boring completed @ 22' bgs -		
						ž y	

PROJECT NUMBER BORING NUMBER 377812 5644 SHEET \ OF \

PROJECT _	GO-11	CJCA			LOCATION	Camo	Lejeune, NC
ELEVATION	Not	Surveyed	DRILL	ING CONTRACTOR _)
DRILLING ME	THOD AND	EQUIPMENT_	HA - DPT	w/ besprobe			
WATER LEVE	LS	7.5' hg		START 0905 7/12	IDA FINISH O	20 7/23/	1 LOGGER 5 Beville

NATER LEVELSSTANDAR				1	START 0905 7/23/09 FINISH 092	ARPARES CONTROL		
OF.				STANDARD PENETRATION	SOIL DESCRIPTION	COMMENTS		
DEPTH BELOW SURFACE (FT)	INTERVAL	NUMBER AND TYPE	RECOVERY (FT)	TEST RESULTS 6"-6"-6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION		
-	0-4	D8-1	2.5		0-15 No Recovery 15-4 Silty Sand (SM). dgray moist, dense-v.dense. vfg.	ilf 2-41- None detected		
-	4-8	DR 2	4		4-7.5 Suby Clay (CL), gray w/ - orange moist, vfg, tracesand	XRF 4-6-None detected		
_					7.5-8 Silty Sand (SM), gray, wet, vfg, m. dense	XRF 6-7- Pb22, 7,22 Sample:		
-					Bonny completed @ 8' bgs	(SCA-SB44-6-7-09C)		
_								
-					-			
-					-			
-					-			
_					-	10		
-								
-					-			

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	W		-	

PROJECT NUMBER
377812 BORING NUMBER
5645/ TW23 SHEET 1 OF 1

DRILLIN	ON _ A	Oot Susver	Y	DPT W/ Power Probe 9500	amp Lejeune. NC
WATER		-)2	START 1435 7/22/69 FINISH 1500	1/22/09 LOGGER J. Beville
ELOW E (FT)	_	SAMPLE	STANDARD PENETRATION	SOIL DESCRIPTION	COMMENTS
ш <u></u>	_1	_ w £	TEST	SOIL NAME LISCS GROUP SYMBOL COLOR	DEPTH OF CASING DRILLING DATE

SAMPLE SAMPLE			DENETRATION		SOIL DESCRIPTION	COMMENTS		
DEPTH BELOW SURFACE (FT)	INTERVAL	NUMBER AND TYPE	RECOVERY (FT)	PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION		
-	0-4	D(-1	2.5		Ground Surface - Pine needles, _ debris from veg cheavance _ 0-15 No Recovery _	XRF 2-41: 20 21, PbTT		
5 - - -	વેશ	76.2	3		15 4 Clayey Sand (SC), gray with 4.5 No Recovery 5.1055ilty Sand (SM), It gray.	range dry, v. danse, vfg XRF 4-5 En 36, Pb 14		
- - -	8-12	B6 3		-	wet: M. dense: vfg-fg - 10.5-12 Sand w/(lay (5P-SC): - gray: wet: dense, vfg-fg -			
-					Boring complete @ 12/bgs -	iž:		
- , –					- -			
-					-			
-				я	-			

CH	27	ML	-	
	41	715	71	_

PROJECT NUMBER
377812

BORING NUMBER
5646

SHEET | OF |

PROJECT	(TO-11	CJCA			LOCATION	Carro	Leighere	NV.
ELEVATION _	Not so	wenty	DI	RILLING CONTRACTO			1	
DRILLING ME	THOD AND E	QUIPMENT		DPT W/GEODY				
WATER LEVE	9			START 1510	167/19 :	cos -16-1	n4	500.11

§F		SAMPLE		STANDARD	SOIL DESCRIPTION	COMMENTS
DEPTH BELOW SURFACE (FT)	INTERVAL	NUMBER AND TYPE	RECOVERY (FT)	PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
	0-4	D&-1	3		0-1 No Recovery 1-4 Clayey Sand (SC), gray - Warange, moist, v. dense, for -	KRF 2-41: NO
5 -	4.8	D(-2	1-1		4-7.5 SAA 75-8 Sand (SP), It gray, moist, m. dense, ifg, little sit	KREF 4-6": En 18, As 18
/b -					Boring completed @ 81 bas -	Sample: C3CA-3846-4-7-09C
-					-	

PROJECT NUMBER 377812 BORING NUMBER

5847/ TW24

SHEET

OF /

PROJEC	TCTC	0-011		- LOCATION C	amp lejeune, uc
ELEVAT		(4)	_ DRILLING CONTRACTOR _ expecte 9500 UTR	SAEDACC	
	LEVELS 8 695				09 1015 LOGGER DIBYOUM/CL
ELOW E (FT)	SAMPLE	STANDARD PENETRATION	SOIL DESCRIPTION		COMMENTS
1 7	_ <u> </u>	TEST	SOIL NAME USCS GROUPS	SYMBOL COLOR	DEPTH OF CASING DRILLING BATE

ŠF	SAMPLE			STANDARD	SOIL DESCRIPTION	COMMENTS
DEPTH BELOW SURFACE (FT)	NTERVAL	INTERVAL NUMBER AND TYPE		PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
	0-41		RECOVERY (FT)	.,,	0-1' No Recovery 1-2' Clayer Sand (Sc) 9ver/black, maist, loose, Medium grained 4-8' Sandy Clay (CL)	Hand Auger Cleared 0-5' 695 Wet @ 8' 695
5 -	ų-8'	DP-2	ų′		9reylorange, Moist, Stiff 8-12' Sand (SP) light grey/block, wet, loose, Malium grained.	XRF 2-41 Pb=7PPM As=2PPM Cu=13PPM 2n=11PPM
[<i>0</i> –	8-12	0P-3	u *		End of being @ 12' bgs -	4-6' Pb = 20 PPM Cu = 7 PPM 2n = 15 PPA 6-7' Pb = 21 PPM AS = 3 PPA Cu = 17 PPM 2n = 7 PPA
-					-	Collected Sample CICA-SB47-6-7-096 @ 1010
-					-	Well construction details 6 (veen: 6-16' bas 5 and! 5.5-16' 695 Bentonite: 4-5.5' 695
_					-	1" pre-packed screen Oriller Could not drill
-						Past 12' 695.
					-	

PROJECT NUMBER
3717812 BORING NUMBER
5648 SHEET OF

PROJEC	т(30-11		JCA	LOCATION _	emp Lejeune, NC
ELEVATI	Decree of the last		SWIN		DRILLING CONTRACTOR _ SAEDACCO	
DHILLIN WATER I			D EQUIP	MENI NO		7/27/09 LOGGER 5 Beville
		STANDARD	SOIL DESCRIPTION	COMMENTS		
DEPTH BELOW SURFACE (FT)	INTERVAL	NUMBER AND TYPE	RECOVERY (FT)	PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
-	0.4	D6-1	3		0-1 No Recovery 1-3.5 Silty Sand (SM), orange- tan, moist, loose, fg-vfa,	XRF 2-4" ND -
5 — -	4-8	00-2	4		35 8 Sandy Clay (CL), gray -	KRF 6-71: 20 14 -
10 -					boring completed @8' bgs -	Sample: - (CSCA-SP48-4-6-09C)
-						-
-					-	- - -
-					,	
-						-
-						-

PROJECT NUMBER 377812 BORING NUMBER

5049/TW25 SHEET

OF

PROJECT ELEVATION _	CTO-Oll		LOCATION	Camp	Lejeune	, uc	
ELEVATION	Not Surveyed	DRILLING CONTRACTOR					
	ETHOD AND EQUIPMENT	RowerProbe 9500					
WATERIEVE	15 12 695	START 7/25/09 1	505 FINION 7	125/09/1	SOO LOCCER	D. Brown Icl.	

SAMPLE STANDARD PENETRATION TEST RESULTS SAMPLE STANDARD PENETRATION TEST RESULTS OF CONTRACTOR OF			STANDARD	SOIL DESCRIPTION	COMMENTS			
INTERVAL	NUMBER AND TYPE	RECOVERY (FT)	PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION			
0-4'	00-1	3'		0-1' No Recovery 1-2' Silty Sand (SM) brown/blact, Meist loose, Medium grained 2-3' Clayer Sand (SC)	U-s' bgs Cleared by Hand Auger.			
4-8'	DP-2	u'		Medium dense, fine grained. 3-4.5' Sandy Clay (CL)	Water 6) 12' 695			
8-121	09-3	3'		4.5-5.0' Clayer sand (50) _ Same as z-3' 5-8' Sandy Clay (CL) — Same as 3-4.5' —	XRF 2-4' Pb= SPPM Cu = 12 PPM U-6' Nothing			
12-16	OP-4	3		9-12' Sand (SP) light grey, Moist, loose, - medium grained, - 12-13' No Recovery -	Collect Sample EJCA - SB49-2-4-096 O1600 Contractor Could not			
				15-16 same as 4-12 but wet.	well construction details Screen: 8-18' 695 Sand: 8-18' 695			
				-	Bentonite: 7-8' 695 Well set at 18' 695 I"Pre-pactred screen 1/2 bay # 2 Sand			
				- -				
	12-8,	2-12 1-3 NUMBER AND TYPE	2-12, 06-3 1-4, 06-1 1-4, 06-1 3, 1-4, 06-1 3, 1-4, 06-1	PERTATION RESULTS 19-7 1 3 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY OP-1 3 SILTY Sand (SM) brown/blacty, moist lease, medium grained 2-3 Cluyey Sand (Sc) light grey/orange, Mc1st, Medium dense, fine grained. 3-4.5 Sandy Clay (CL) light grey, maist, stiff 4.5-5.0 Clayer Sand (Sc) Same as 3-4.5 8-9 Ne Recovery 1-12 Sand (SP) light grey, maist, loose, Medium grained 12-16 Op-4 3 12-16 Same as 9-12 but wet.			

PROJECT NUMBER
377312 BORING NUMBER
5650 SHEET OF

PROJECTCTO-11, CJCA	LOCATION Camp Lejeune, NC
ELEVATION ON Sureup DRILLING CONTRACTO	1 //
DRILLING METHOD AND EQUIPMENT HAS DET W/ GEORGE	
WATER LEVELS 7.5 bas START 1610	1/27/09 FINISH 1620 7/27/09 LOGGER S Benille

ĕF		SAMPLE		STANDARD PENETRATION	SOIL DESCRIPTION	COMMENTS
DEPTH BELOW SURFACE (FT)	INTERVAL	NUMBER AND TYPE	RECOVERY (FT)	TEST RESULTS 6"-6"-6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
-	0-4	D8-1	3		0-1 No Recovery 1-4 Sitty Sand (5M), gray, - moist, m. denge vfg, trace clay 4-7.5 Sandy Clay (CL), gray	XXF 2-4" ND
5-	4-8	DF-2_	4		Worange, moist, stiff, vfg _ 7.5-8 Sand (SP), gray, wet	XRF 6-71: ND
[5]		×			Boring completed @ 8' bgs	Sample: (ScA-5850-4-6-09C)
						-

PROJECT NUMBER
377812
BORING NUMBER
SBS1/TW26 SHEET

SOIL BORING LOG

PROJECT CTO-Oll

ELEVATION Vot Surveyed DRILLING CONTRACTOR SAEDACCO

DRILLING METHOD AND EQUIPMENT fower probe 95 00 UTR

WATER LEVELS 7 695

START 7/25/09 1145 LOGGER D. BICLIM / CLT

SAMPLE			STANDARD	SOIL DESCRIPTION	COMMENTS			
DEPTH BELOW SURFACE (FT)	NUMBER AND TYPE	RECOVERY (FT)	PENETRATION TEST SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY		DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION			
-0-4	' 00-1	3'		0-1' No Recevery 1-2' sitty Sand (SM) black/brown, Moist, Medium dense, Medium grained	Hand Auger Cleared 0-5' bgs			
5 - 4-8	1 DP-2	3		1.5-2' Clayey Sand (SC) grey/crange, Moist, dense, fine grained Z'-4' Sandy Clay (CL) grey with crange Streets,	Water tuble @ 7'			
0 -8-1	2' DP-3	પ'		Moist, stift 4-5' No Recovery - S-6' Some as 2-4' - 6-7' Same as 1.5-2' -	Driller Could not drill Past 12' 695,			
				7-8' Sand (SP) grer, wet, loose, medium grained 8-9' Clayey sand (Sc) grey, wet, stiff	Collected Sample [CJCA - SBSI - 2-7-09C] XRF 2-4' Pb=17PPM Cu = 3PPM As=1PPN			
-				9-12' Silty Sand (SM) light grey, wet, loose, - Medium grained: - 12' end of boring	4-6 Pb=13 ppm A5=2 ppm Zn=15 ppm 6-7' Pb=14 ppm A5=3 ppm			
				-	Cu=11 PPM Construction Details The packed screen			
					1/2 bag # 2 sand Screen: 6-16' bgs Sand: 5.5-16' bgs bentanite: 4.5-5.5' bgs well set at 16' bgs			
-				- -				

OF

PROJECT NUMBER
317812

BORING NUMBER
5652

SOIL BORING LOG

PROJEC	т	CTO	-11	CJCA	LOCATION _C	amp Lejeune, NC
		Not o	•	MENT H	DRILLING CONTRACTOR _ SAEDA CLO_	, ,
WATER					START 1630 7/27/09 FINISH 1645	7/27/19 LOGGER S. Beville
%F		SAMPLE		STANDARD	SOIL DESCRIPTION	COMMENTS
DEPTH BELOW SURFACE (FT)	INTERVAL	NUMBER AND TYPE	RECOVERY (FT)	PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
	0-4	Df-1	3	,	1-6 Sity Sand (Sm), gray moist, mdense, vfg	
5 -	4-8	DF-2	4		6-8 Chayry Sand (60), gray whorange, moist, dense, vfg	XRF 4-6-1 Pb 13 -
19 -					Boving completed @8'bgs	Sample: CJCA-58552-4-6-09C

PROJECT NUMBER
377812

BORING NUMBER
5853 / TW27 SHEET | OF |

ROJEC	т_С	TO-1	C	JCA	LOCATION —	Camp Lejeune, NC
LEVATION			Sur		DRILLING CONTRACTOR SAEDACCO	()
					& DPT w/Powerprobe	2 10 20
	EVELS	-11	.) '	73	START 0 100 1/22/09 FINISH \$950	7/22/04 LOGGER - Beville
ĕ£		SAMPLE		STANDARD PENETRATION	SOIL DESCRIPTION	COMMENTS
DEPTH BELOW SURFACE (FT)	INTERVAL	NUMBER AND TYPE	RECOVERY (FT)	TEST RESULTS 6"-6"-6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
-					Ground gurface pine readler,	Dilling rote 4' 15 min
-	0-4	D6-1	25		0-1.5 No Recovery	XRF 2-41 None detected
_					15-4 (1. S. A (SC) du	XRF 4-6: None detected
	4-8	bP-2	3.5		4-4.5 No Resovery 45-80 Sandy Clay (CL), gray of	KRF 6-7' Done detected
	9.12	TD(-3	3.5		ovange moist, v. stiff, vfg 10-14 Silty Sand (SM), gray, _ moist to wet.	Drilling rate: 16/120 min
	12-16	1-90	4		14-18 SAR. d. gray, wet Wood Fragments @ 15-15.2"	water@ 11.5'bgs
-					wet, m. danger rfg	
	10.30	78.5	3			
-						Drilling rate 25'/35 min
-					Boring completed @ 20 bgs -	Well construction: 10-20' 1" Screen
-					(-	8.20' Sand
-					-	7-8' Bentunite
						2'ags - 10' 1" PVC caring -
-						Jampulcomposite):
-					**	For Select metals, pH

PROJECT NUMBER 377812 BORING NUMBER SB 54

SHEET

OF /

SOIL BORING LOG

PROJECT CTO-011

LOCATION CAMP Leieune, NC

ELEVATION NOT SWVEYED DRILLING CONTRACTOR SAEDACCO

DRILLING METHOD AND EQUIPMENT Geopyabe DPT 54 DT

WATER LEVELS 7.5' b95 START 712269 1035 FINISH 712269 1050 LOGGER D. BYCWN 1 CLT

Š.C	SAMPLE			STANDARD	SOIL DESCRIPTION	COMMENTS
DEPTH BELOW SURFACE (FT)	INTERVAL	NUMBER AND TYPE	RECOVERY (FT)	PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
22	0-41	09-1			0-1' Silty Sand (SM) Brown, Moist, loose, fine grained 1-4' Clayey Sand (Sc)	Hand Auger Cleared O-5' bgs.
5-	4-8'	OP-2	ų ¹		Grange/tan, Mcist, dense, _ fine grained 4-7,5' Sandy Clay (CL) Grange/grey, Mcist, Stiff	·
10-	8-12	DP3	4'		7.5'-12' Clayey Sand (Sc) 9rey with crange Streats, wet, very dense, fine 9rained.	XRF 2-4' Pb=19 PPM - Cu=25 PPM - Zn=6 PPM -
15-		2			End of boring 12' bgs -	4-6' Pb= 18 ppm As= 7 ppm Cu= 15 ppm 2n= 11 ppm - Cu= 66 ppm Zn= 11 ppm
-						Callected SampleS - CJCA-SBS4-6-7-09C
_						CTCA-SBS4-6-7-09C-MS - CTCA-SB\$4-6-7-09C-SD - @ 1050 -

PROJECT NUMBER

377812

BORING NUMBER

58 55 SHEET | OF |

PROJECT	CTO-011			LOCATION	Camp L	e)eune,	NC	
Will the state of	Not Survey	d DRILLING COM	NTRACTOR					
DRILLING ME	THOD AND EQUIPMENT	Geoprobe PPT	54 DT					
WATER LEVEL	s 5' 695	START	7/22/09 100	FINISH 7/	12/09 1020	LOGGER D.	Breun	ICLT

SF		SAMPLE		STANDARD	COMMENTS			
SURFACE (FT)	INTERVAL	NUMBER AND TYPE	RECOVERY (FT)	PENETRATION TEST RESULTS 6*-6*-6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION		
	0-4'	0P-1	2		0-2' No Recovery 2-4' Silty Clay (CL) Crange/grey, Moist, Stiff	Hand Auger Cleared O-5' b95.		
5-	4-8'	DP-2	ų1		4-7' Clayey Sand (SC) quey, Maist, Medium dense, very fine grained. wat at S'	water table @ 5' bgs		
- - -01	S-12'	DP-3	ų!		7-8' Sandy Silt (ML) gvey, wet, stiff 8-12' Silty Clay (CL)	-		
					orange larey, Mcist, Stiff - End of boring 12'	Collected Sample CJCA-SBSS-4-6-09C @) 1020		
.5- - - -						XRF Readings 2-4' pb=131PM Zn=28PPM Cu=4PPM		
1 1 1					- - -	4-6' Pb= SE PPM ZN= 16 PPM 6-7' Pb= 14 PPM As= 1 PPM Cu= 13 PPM		
1 1 1						Zn=13 PPM		

PROJECT NUMBER
517812 BORING NUMBER
5656 SHEET OF

PROJECT CTO-11 CTCA	LOCATION Camp Lejeune, NC
ELEVATION Not Survey &	DRILLING CONTRACTOR SAEDACLO
DRILLING METHOD AND EQUIPMENT	IA & DPT W/ Geographe 54DT
WATER LEVELS	START 1250 7/27/09 FINISH 1250 7/27/09 LOGGER 5 Beville

SF.		SAMPLE		STANDARD	SOIL DESCRIPTION	COMMENTS
SURFACE (FT)	INTERVAL	NUMBER AND TYPE	RECOVERY (FT)	PENETRATION TEST RESULTS 6"-6"-6"	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
200	=	ZK	E.F.	(14)	The state of the s	ARF cassurements in ppm
-					0-1 No Recovery	
	0-4	1-80	3		1-3 Sty Sand (SM), gray, -	XP. F 2-41: Pb 19
_					moist, danse, its	
5 –						XRF 4-6': 20 22
_	4-8	08-2	4		workings moint, vidence, usg _	XAF 6-7 - 2085, ASI
-					5.5-8 Sandy Clay (CL), gray -	
					wlavange, mont, stiff, ifg	S
					Boring completed to 8' box -	Sample
٥					and and	CJCA-3656-2-7-09C
					7	
					-	
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PROJECT NUMBER 377812 BORING NUMBER 9B 57/TW 29

SHEET

OF /

DRILLIN	ION	NOT ANI	D EQUIP	veyed	Dower Drobe, 9500 VTR				
	LEVELS	10	bg	5	START 7/23/09 1145 FINISH 7/23/0	9 1220 LOGGER D. Brewn /CLT			
DEPTH BELOW SURFACE (FT)	NTERVAL	NUMBER AND TYPE	RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION			
	0-4'		ユ ′		0-2' No Recovery 2-3' Silty Sand (SM) brown/black, Moist, medium dense, medium	U-s' Cleared with hand Auger,			
5-	1 -8'	0P-2	4'		grained. 3-4.5' Clayer sand (Sc) — light grey/white, Moist, dense, Medium grained —	water Table @ lo'bg5			
10-	8-12	DP-3	41		4.5-10' Sundy Clay (CL) light grey/white, crange Streaks present, Maist, Stiff 10-11' Clayey Sand (Sc)	XRF 4-6' Pb=21 PPM Zn=25 PPM 2-4' Pb= 1722 PPM			
15-	12-16	DP-4	4'		light grey/white, wet, dense, medium grained. [1-16' Silty sand (SM) orange/grey, wet, lose Medium grained.	2n = 783 PPM Cu = 1415 PPM As = 372 PPM 6-7' Pb = 607 PPM Zn = 208 PPA			
5					-	Construction Details: I" Prepacted screen. I bag of sand. Screen: 6-16' b95 Sand: 6-16' b95			
_					Collected Sample	bentanite; 4.5-6' b95 - CJCA-TW29 Set 16 ft, b95			

PROJECT NUMBER
3 17812 BORING NUMBER
5658 SHEET OF

PROJEC	T_C	10-11	C	ich		amp Lejeunes NC			
ELEVATI	ON	Not	Surv	eyed	_ DRILLING CONTRACTOR _SAEDA ((1)	· J			
WATER LEVELS START 1150 7/27/09 FINISH 1205 7/27/09 LOGGER 3. Beville									
WATER					START 1150 1121/09 FINISH 1205	1/21/07 LOGGER - J. Daville			
SE.		SAMPLE		STANDARD PENETRATION	SOIL DESCRIPTION	COMMENTS			
DEPTH BELOW SURFACE (FT)	NTERVAL	NUMBER AND TYPE	RECOVERY (FT)	TEST RESULTS	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE,	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION			
SURI	NTE	250	SE.	6"-6"-6" (N)	MINERALOGY	AC			
200	_=	-4		17.05	0-1 Peat (Pt), d brown, moist,	XXX mediument in ppn			
-						-			
-	0-4	$\mathcal{D}_{b^{-j}}$	4		U U	XRF 2-41. 2016, AST -			
					1-4 Sitty Sand (8m), gray,				
5-					mout, dense, ifa -	XXX 4-0 (n.16, H) 12			
-	4-8	00.2	4		4-8 Sandy Clay (CL), graywi -	KKF 6-7" = ND			
					arange, V. stiff, moist, vfg				
-				,	3	Sample: -			
10-					Boring completed @ 8' bgs _	C3CA-5658-2-6-09C			
					-	Cycli your Zab			
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PROJECT NUMBER

BORING NUMBER

5859/TW30

OF

SHEET

SOIL BORING LOG

CTO-Oll LOCATION CAMP Lejeune, NC PROJECT ELEVATION Not Surveyed DRILLING CONTRACTOR SAEDACCO DRILLING METHOD AND EQUIPMENT Power probe 9500 UTR START 7/23/09 1335 FINISH 7/23/09 1350 LOGGER 0, Brown /CLT WATER LEVELS _ !1' 695 DEPTH BELOW SURFACE (FT) SAMPLE STANDARD PENETRATION SOIL DESCRIPTION COMMENTS RECOVERY (FT) NUMBER AND TYPE SOIL NAME, USCS GROUP SYMBOL, COLOR, DEPTH OF CASING, DRILLING RATE. NTERVAL RESULTS DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, 6"-6"-6" MINERALOGY 0-1' No Recovery Cleared 0-5' 695 1-2' Silty Sand (SM) with Hand Auger 0-4109-1 Brown/grey, Moist, loose Medium grained 2-2.5' clayey sand (SC) light grey/moist, medium dense, medium grained 4-81 09-2 u' 2.5-9.5' Sandy clay (CL) light grey with crange water table @ 11 bgs Streaks, Moist, Stiff 9.5-10.5 Clayer Sand (Sc) 8-12 DP-3 Same as 2-2,5' 10.5-12.5' Sund (SP) Pb=41 PPM 2-4/ grey/white, moist, loose, medium grained ZN=15 PPM Cu = 23 PPM 12-16 DP-4 4' Wet at 11' As= 10 PPM 12.5-13.0' Sandy Clay (CL). 15 -4-6' Pb = 32 PPM Same as 2,5'-9.5' 2n=17 PPM 13-16' Sand (SP) A5 = 2 PPM grey/dark brown, wet, Cu= 21 PPM loose, medium grained 6-7' Ph = 13 PPM Zn=3PPM Cu = 16 PPM Construction Details Set well Tw 30@ 16' 695 use I" pre poached screen Collected Sample Sand: 5.5-16'695 CJCA-5859-2-4-09C @ 1350 Screen: 6-16' 695 CJCA-SB59D-2-4-09C@1355 Bentonite: 4-5,5' 695 Set well @ 1400

PROJECT NUMBER 377812

BORING NUMBER

SHEET

OF /

SOIL BORING LOG

PROJECT CTO-011

ELEVATION Not Surveyed DRILLING CONTRACTOR SAEDACCO

DRILLING METHOD AND FOLLIPMENT GREAT SAUT

DRILLING METHOD AND EQUIPMENT Geopyche DPT 540T

WATER LEVELS 9'695

START 7/12/09 1430 FINISH 7/12/09 1445 LOGGER D. BYCOM / CLT

WAIEH	LEVELS	·	-/-		START TIPICAL FINISH TITLE	LOGGER P. DIELEN TEST
Š€		SAMPLE		STANDARD PENETRATION	SOIL DESCRIPTION	COMMENTS
DEPTH BELOW SURFACE (FT)	INTERVAL	NUMBER AND TYPE	RECOVERY (FT)	TEST RESULTS 6"-6"-6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
	0-41	DP-1	4′		O-115' Silty Sand (SM) Brown, Moist, loose, Dense, fine grained 1.5'-4' Clayey Sand (Sc)	itand Auger cleared _ 0-5' bgs
5-	4-8'	OP-2	ų'		grey with avange streats, Maist, dense, fine grained _ 4-9' Sandy Clay (CL) _ Grey/tan, Maist, Stiff _	
-01	8-12	DP-3	u¹		orange staining at 7' - 9-10' Silty Sand (SM) - Grey/crange, Wet, loose,	water table observed
15-					Medium dense, fine grained _ 10-12' Poorly Graded Sand (SP) - Grey/tan, wet, loose, — Medium dense, medium - grained	at 9' XRF 2-4' Pb = 15 PPM - 4-6' Th = 18 PPM - 4-6' Th = 18 PPM - 6-7'- NO Detections - 4-6-09C - 4-6-09C - 6-1445
					-	-

PROJECT NUMBER 377812 SB61/TW31

SHEET

OF /

SOIL BORING LOG

ELEVATION NOT SURVEYED DRILLING CONTRACTOR SAEDACCO	PROJECT	CTO	-011		LOCATION	Camp	Le jeun e	NC
ELEVATION /VUI JULIUS CONTRACTOR STEPTICE	ELEVATION	Not	Surveyed	DRILLING CONTRACTOR	SAEDA	CLO		

WATER LEVELS 11' 695 START 7/2/69 0910 FINISH 7/2/69 0930 LOGGER D. BYCOM / CET

WATER	LEVELS	3 11 1	093		START 7/22/09 0910 FINISH 7/22/0	9 0100 LOGGER PL DYCLUM / C	21
§€		SAMPLE		STANDARD	SOIL DESCRIPTION	COMMENTS	
DEPTH BELOW SURFACE (FT)	INTERVAL	NUMBER AND TYPE	RECOVERY (FT)	TEST RESULTS 6"-6"-6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION	
-	0-4'	09-1	3'	=	0-1' Ne Recovery 1-5' Silty Sand (SM) Black, Moist, losse, Medium grained	Cleared 0-5' b95 With Hand Auger,	
5-	4-8'	0P-2	3'		5-6' Ne Recovery _ 6-8' Silty Clay (CL) = Black/grey, Mast, Stiff		-
10-	8-12	DP3	1'		8-11' Ne Recovery [1-12' Silty Sand (SM) - Black, wet, loose, Medium grained -	Wet @ 11' hgs	-
15-					End of bering 12' has -	2-4' Pb = 20 PPM 2n = 18 PPM 4-6' Pb = 6 PPM Cu = 5 PPM 6-7' Pb = 6 PPM /45 = 1 PPM 2n = 5 PPM Cu = 25 PPM	
-					-	Collected Sample CJCA - 5861-2-4-09C	-
				£	-	6 0930	

PROJECT NUMBER

377812

BORING NUMBER

5862

SHEET

SOIL BORING LOG

PROJECT CTO-011 LOCATION CAMP Lejeune, NC

ELEVATION Not Surveyed DRILLING CONTRACTOR SAEDACCO

DRILLING METHOD AND EQUIPMENT Geoprobe DPT 540T

WATER LEVELS 705' 695 START 7/22/04 1300 FINISH 7/22/09 1320 LOGGER D. BYCHA / CET

30		SAMPLE		STANDARD	SOIL DESCRIPTION	COMMENTS
DEPTH BELOW SURFACE (FT)	INTERVAL	NUMBER AND TYPE	RECOVERY (FT)	PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
-	0-4'	09-1	3'		0-1' No Recovery 1-2' Silty Sand (SM) Brown, Moist, loose, fine grained	Hand Auger Cleared O-S' b95
5-	4-8'	0P-2	3		2-4' Clayey Sand [SC] — Orange/tan, Moist, — dense, fine grained —	
- -01	8-12'	DP-3	4'		4-5' Ne Recovery - 5-7' Sandy Clay (CL) - Gangelgrey, Mast, Stiff -	water table at 7.5 bgs
- - - 15-					7-10' Silty Sand (SM) crange / grey, Moist, Medium dense, Medium grained, Wet at 7.5' bgs 8-12' Same as S-7'	XRF 6-7'- No Detections 4-6'- No Detections 24'-Pb 17PPM
-					End of boring 12'	Collected Sample CJCA-5B62-2-4-09C
(-					-	

OF /

PROJECT NUMBER 377812

BORING NUMBER
\$863/TW32

SHEET

OF

SOIL BORING LOG

CTO-11 Camp Lejeune, NC PROJECT SAEDACCO FLEVATION NOT SURVEYED DRILLING CONTRACTOR DRILLING METHOD AND EQUIPMENT GEOPTCHE DPT SYDT START 7/3/69 0940 FINISH 7/23/69 (035 LOGGER D. Brown/CLT WATER LEVELS 10 595 STANDARD PENETRATION TEST RESULTS DEPTH BELOW SURFACE (FT) SAMPLE SOIL DESCRIPTION COMMENTS RECOVERY (FT) NUMBER AND TYPE SOIL NAME, USCS GROUP SYMBOL, COLOR, DEPTH OF CASING, DRILLING RATE, NTERVAL MOISTURE CONTENT, RELATIVE DENSITY DRILLING FLUID LOSS. OR CONSISTENCY, SOIL STRUCTURE, TESTS AND INSTRUMENTATION 6*-6*-6* MINERALOGY 0-11 No Recovery Hand Auger cleared 1-3' Silty sand (SM) 0-4' 0-5' 695 09-1 brown, Moist, medium dense, Medium grained. 3-5' Clayer sand (sc) lightgrey/white, Moist 5 4-81 medium den se, medium DP-2 grained 5-9' sandy clay (CL) light grey with ordinge Streaks, Moist, Stiff Water Table at 8-12 OP-3 10'695. 9-11' clayey sand (sc) grey/brown, Moist, dense, medium grained. 41 2-4' P6=150 PPM A5=138 PPM wet at 10' 12-16 109-4 2n=203 PPM Cu=304APA 11-16' Sand (SP) 15 orange larey, wet, loose, 4-6' Zn=19PPM (u= 36PPM medium grained. AS=10 PPM Pb=13 PPM End of Boring 16' 6-7' Pb=13PPM A5=2PPM CU=3PPM Zn=1ppm Construction Details " Pre pocked screen. Collected sample Screen: 6-16' bas Sand: 6-16' 495 CJCA-5863-2-4-09C Bentonite; 5-6'695 @ 1010

PROJECT NUMBER
377812 BORING NUMBER
5664 SHEET OF

PROJECT _CTO-11 CSCA	LOCATION Camp Leguns NC
ELEVATION _ Not surreyed	DRILLING CONTRACTOR SAE DACCO
DRILLING METHOD AND EQUIPMENT _	
WATER LEVELS	START 1045 7/27/09 FINISH 1100 7/27/09 LOGGER 5 BEVILLE

WATER	LEVELS				START 1045 7/27/09 FINISH 1100 -	127/09 LOGGER - DEVILLE
%F		SAMPLE		STANDARD	SOIL DESCRIPTION	COMMENTS
DEPTH BELOW SURFACE (FT)	INTERVAL	NUMBER AND TYPE	RECOVERY (FT)	PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
-	0-4	D6.1	Ц		0-3.5 Silty Sand (SM), gray, _ mount, m. dense, vfg, littleday- 3.5.8 Sandy Clay (CL), gray	XRF 2-4'; (VD) -
5 -	4-8	08-2	ч		3.5-8 Sandy Clay (CL), gray who was not not stiff to v. stiff,	KRF 4-6': 2n: 23, No: 16 -
10					boring completed @ 8' bgs	Sample: [CSCA-SBOH-4-7-09C] CJCA-SBOH-4-7-09C]
-	-				-	

PROJECT NUMBER 377812

BORING NUMBER \$B65/TW 33 SHEET

OF

SOIL BORING LOG

PROJECT CTO-011

SAEDACCO

DRILLING METHOD AND EQUIPMENT Geoprobe DPT 540T
WATER LEVELS 11.5' 695 START 7/22/09 1650 FINISH 7/22/09 1715 LOGGER D. BYOWN / CLT

ŠF		SAMPLE		STANDARD	SOIL DESCRIPTION	COMMENTS
DEPTH BELOW SURFACE (FT)	INTERVAL	NUMBER AND TYPE	RECOVERY (FT)	PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
	0-41	09-1	3.5		0-0.5 No Recovery 0.5-1.5 Silty Sand (SM) Black / Brown, woist, medium dense, fine	Hand Auger cleared 0-5' bgs.
5-	4-81	OP-2	4'		grained. 1.5-4.5' Clayer Sand (sc) Grey with orange streats Moist, dense, very	-
10-	8-12	DP-3	4'		fine grained. 4.5-9.5' Sandy Clay(cy)- grey/tan, Moist, Very Stiff	Water table at 11.5'
15-	12-16	OP-4	4'		9.5-16' Sand (SP) 9rey/white, Maist, loose, Medium grained - Parly graded	XRF 2-4' Pb=1448 Ppm Zn=3927 Ppm
-					10'-crange 11'-blach 11.s'- Wet 12'- crange 13'- blach	Cu = 7944 PPM 4-6' - No Detections 6-7' - No Detections
					End of Boring 16'	Collected Sample
				111	Set CJCA-TW33 on _ 7/23/09 @ 09/0 Prepacked Screen: 6-16' b95 - Sand: 6-16' b95 - Bentonite: 5-6' b95 -	CTCA - 5B65 - 2-4-09C.

PROJECT NUMBER

BORING NUMBER

SHEET

OF /

SOIL BORING LOG

PROJECT CTO-011 LOCATION COMP Leieune, NC
ELEVATION NOT SUR VEYED DRILLING CONTRACTOR SAEDACCO

DRILLING METHOD AND EQUIPMENT Geopyche PPT 540T

WATER LEVELS M. 5'695

START 7/22/64 1550 FINISH 7/22/69 1630 LOGGER D. BYCOM / CLT

ATER LE	VELS	III	0/		START TISTE TINISH TITLE	9 1630 LOGGER D. Brewn / CZ
&F L	S	AMPLE		STANDARD PENETRATION	SOIL DESCRIPTION	COMMENTS
DEPTH BELOW SURFACE (FT)	INTERVAL	NUMBER AND TYPE	RECOVERY (FT)	TEST RESULTS 6"-6"-6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
-	-4'	0P-1	3'		0-1' No Recovery 1-4.5' Silty Sand (SM) Black, Moist, Medium dense, fine grained	Hand Auger Cleared O-S' bgs.
5-4	-8'	0P-2	ч'		4.5-lo.s' sandy clay (CL) — 9rey/tan with orange - Streaks, Moist, Stiff -	1600- Driller loses spring on drill rig. 1615- Driller Vesumes Drilling
10-8	-12'	DP-3	ч′		10.5-13' Silty Sand (SM) - grey/brown, Moist, — Medium dense, Medium - grained. Wet at 11.5'	water table @ 11.5' bgs
15-	2-16	PP-4 	ч′		13'-16' foorly Graded Sond (SP) - grey/brown, wet, medium dense, medium - grained - End of boring 16' -	XRF 2-4' 16 Detection S. 6-7' No Detection S. 4-6' Pb= 1475 PPM AS= 2107 PPM 2n= 3748 PPM Cu= 7389 PPM
-					-	Collected Sample
						CJCA-5866-4-6-09C @ 1630
-					_	

PROJECT NUMBER 377812 BORING NUMBER

5867/TW34 SHEET

OF /

SOIL BORING LOG

PROJECT CTO-011

LOCATION COMP Leieune, NC

ELEVATION Not Surveyed DRILLING CONTRACTOR SAEDACCO

DRILLING METHOD AND EQUIPMENT Geopycbe DPT 54 DT

WATER LEVELS 10'695

START 712264 1515 FINISH 712269 1545 LOGGER D. BYCWA 1 CET

ŠF.		SAMPLE		STANDARD	SOIL DESCRIPTION	COMMENTS
DEPTH BELOW SURFACE (FT)	INTERVAL	NUMBER AND TYPE	RECOVERY (FT)	PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
	0-41	DP-1	,		0-3' Silty Sand (SM) brown/black, moist, medium dense, fire grained	0-5' Cleared by Hard Auger
5-	4-8'	OP-2	4'		3-5.5' Clayey Sand (sc) - grey with orange streats - Moist, dense, fine grained -	
10-	8-12	DP3	y '		5.5-10' Sandy Clay (CL) grey/tan, Moist, stiff 10-13' Silty Sand (SM)	Water table @ 10' b95 -
15-	(2-16	VP-4	ч′		grey with crange streats - by Maist, loose, Medium - dense. Wet at 11.5'	XRF 2-4' No Detections
					13-16' feerly Graded Sand (SP)- 9vey/crange, wet, malium - dense, medium grained -	4-6' No Detections 6-7' Pb= 1435 PPM As = 2415 PPM Cu= 8073 PPM Zn= 4205 PPM
					End of boring 16' -	Collected Sample - CJCA-SB67-6-7-09C
					Set CJCA-TW34 Screen: 6-16' b95 Sand: 6-16' b95 50-16 - Bentenite: 5-6' 695 I So 16 bag of Sand was used.	1645 Twoy set with bottom of screen 16' b95 well set on 7/23/69 6) 845. Lo' prepacted screen was

PROJECT NUMBER 377812 BORING NUMBER 5868

SHEET

OF /

SOIL BORING LOG

PROJECT CTO-011
ELEVATION Not Surveyed

LOCATION Camp Lejeune, NC

ON Not Surveyed DRILLING CONTRACTOR SAEDACCO

DRILLING METHOD AND EQUIPMENT Geopyche PPT 54 DT
WATER LEVELS 10 695 START 7/22/69 14

WATER LEVELS 10 695 START 7/22/69 14CC FINISH 7/22/69 1420 LOGGER D. BYCOM / CLT

VATER	LEVELS	10	073		START //22/04 14CC FINISH 7/22/0	9 1420 LOGGER D. BYCHA /CL
ĕ.		SAMPLE		STANDARD PENETRATION	SOIL DESCRIPTION	COMMENTS
DEPTH BELOW SURFACE (FT)	INTERVAL	NUMBER AND TYPE	RECOVERY (FT)	TEST RESULTS 6"-6"-6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
-	0-41	09-1			O-1,5' Silty Sand (SM) Brown, Moist, loose, Medium grained 1.5-3,5' Clayey Sand (SC)	Hand Auger Cleared _ O-5' b95 -
5-	4-81	OP-2	ч'		Grey with crange straits, Maist, medium dense, fine grained. 3.5-6.0 Sandy Clay (CL)	-
io-	8-12'	DP-3	ų/		grey/tan, maist, very stiff_ 6-6.5' silfy sand (SM) _ grey/tan, maist, loose, - fine grained.	Water table 6) 10' hgs -
15-		2			6.5-10' Sandy Clay (CL) - Same as 3.5-6.0' - 10-12' Silty Sand (SM) Grey, wet, dense, Medium grained	XRF 2-4' No Detections - 4-6' As = 11 PPM - 6-8' No Detections -
-					End of boring 12'	Collected Sample - CJCA-5B68-2-4-09C
-				×		-
-					-	-

PROJECT NUMBER 377812 BORING NUMBER 5869/TW35

Compleieune, NC

SHEET

OF

SOIL BORING LOG

PROJECT	CTO-11		LOCATION Co
ELEVATION	Not Surveyed	DRILLING CONTRACTOR	

DRILLING METHOD AND EQUIPMENT DPT Geoprobe 54 01

START 7/21/09 1605 FINISH 7/21/09 1630 LOGGER D. Brown / CLT WATER LEVELS 10 695

SAMPLE SAMPLE					9 1630 LOGGER D. Dreun 161	
SE -				STANDARD PENETRATION	SOIL DESCRIPTION	COMMENTS
DEPTH BELOW SURFACE (FT)	INTERVAL	AND TYPE	RECOVERY (FT)	TEST RESULTS 6"-6"-6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
-	-4' D		3.5'		0-0.5' No Recevery 0.5-2' SILTY Sound (SM) Brown/orange, Maisti Medium dense, Very	Hand Auger Cleared 0-5' bas.
5 - 4	-8 [†] 0	P-2	ч'		fine grained Sand - 2-4' I waganic Silt (ML) - Crange/grey, Maist, - Medium Stiff - 4'-11' Clayey Sand (SC) -	-
0 - 8	-12' D	P-3	ų '		crangeltan, Moist, Medium - dense, fine grained	Water at 10' bas
15-12	-16' 0	p_4	ų		11-16' Silty Sand (SM) - Ovange/gray, wet, loose, - Medium grained	Cu = 18PM
-	-				16' End of boring	4-6' pb= SppM As= 15ppM Cu= 1ppM 6-7' pb= 9ppM
-						AS = 15 PPM Cu = 10 PPM Zn = 57 PPM
-					-	Collected Sample CJCA-5869-6-7-09C @ 1640.
-					-	

PROJECT NUMBER 377812 BORING NUMBER 58 70

SHEET

OF !

SOIL BORING LOG

PROJECT __ CTO - OII ELEVATION Not Surveyed SAEDACCO _ DRILLING CONTRACTOR

LOCATION COMP Lejeune, NC

DRILLING METHOD AND EQUIPMENT Geopyche PPT 540T WATER LEVELS 9 695 START 7/2/64 13

START 7/22/69 1330 FINISH 7/22/09 1350 LOGGER D. BYCOM / CLT

		SAMPLE		STANDARD	SOIL DESCRIPTION	COMMENTS
DEPTH BELOW SURFACE (FT)	INTERVAL	NUMBER AND TYPE	RECOVERY (FT)	PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
	0-4'		41		0-2' Silty Sand (SM) Brown, Moist, loose, fine grained 2-4' Clayer Sand (SC)	Hand Auger Cleared 0-5' b95
5-	4-81	OP-2	ų!		grey/crange, moist Medium dense, fine grained— 4-9' Sandy Clay (CL) Grey with crange straits,	-
- 10-	8-12'	DP-3	41		Moist, very stiff 9-12' silty sand (sm) Grey, wet, derse, Medium grained	hadretall Godine
5-					End of boring 12'	Water table @ 9'bgs
-					-	XRF 2-4' Fe= 17, 000 PPN 4-6' No Vetections 6-7' Pb= 16 PPM
-					-	Collected Sample CJCA-SB70-2-4-09C @1350
					_	Collected Sample CJCA-SB70D-2-4-09C @ 1355
				(9)		
_					(8.30)	REV 12/01 FORM D

PROJECT NUMBER

BORING NUMBER

5871/TW 36 SHEET

OF /

PROJECT _ CAMP Johnson	LOCATION Camp Leseune, VC
ELEVATION Not Surveyed	DRILLING CONTRACTOR SAEDE CCO
DRILLING METHOD AND EQUIPMENT Hand	Auger and DPT with Geoprobe SYDT and Power Picke 9 Sa
WATER LEVELS 91 695	START 7/21/09 0930 FINISH 7/21/09 1010 OGGER 1 Brown/CLT

ŠF.	SAMPLE			STANDARD SOIL DESCRIPTION		COMMENTS
DEPTH BELOW SURFACE (FT)	INTERVAL NUMBER AND TYPE		AND TYPE AND TYPE RECOVERY (FT)	PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
	0-4	06-1	4'		2-5' Clayer sand (SM) Black, Moist, Medium dense	Cleared 0-5' with hand Auger
5-	4-8	06-5	ų '		5-8' Silty Clay (CL) Tan, Maist, Stiff, trace sand.	,
10 -	8-12	OP-3	ų /		8-9' Silty Clay ((L) Tan/black - Meist, Very Stiff, trace - Sand - 9-10' Clayer Silt (ML) Tan, - Wet, Very Stiff,	Water at 9'
. [5-	(2-16	рр-ч	4'		10-16' Poull graded sand - with silt (SP-SM) Grey/white, Weet, Medium - dense, Medium graned.	Installed Tw36 Screen Set at 16' Tep of screen at 6'
					14'- Colorchange Dart Brown - End of bering - 16'	Collected Somfle CJCA - SB71-6-7-09C at 1010
20 -					-	XRF measurements 6-7' - Pb=20PPM
-						2N = 15 PFM - Cu = 39 PPM -
	-				- -	

PROJECT NUMBER
377812
BORING NUMBER
5672

SOIL BORING LOG

SHEET

OF

PROJECT	「 <u></u>	CT0.	11	CJCA		amp lejeune. Ne
ELEVATIO					DRILLING CONTRACTOR SAEDACCO	QC AC
DRILLING WATER L			5 b		START 7/21/09 1455 FINISH 7/21	9500 99 1520 LOGGER S GAVILLE
ГТ	-	SAMPLE		STANDARD	SOIL DESCRIPTION	COMMENTS
DEPTH BELOW SURFACE (FT)	INTERVAL	NUMBER AND TYPE	RECOVERY (FT)	PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
-	0-4	76-1	2.5		0.5-2 No Recovery	18852-4 - No hits -
-	4.8	₩ 2	3.5		gray, dry, loose, vfa -	Cu: 17 - 10:90. As: 10:30:13 - Cu: 4
	8-12	76-3	2.7		4-45 No recovery - 45-8 Sandy Clay (CL), gray - wlarange, moist, v. Stiff	water @9.5' bgs
-					8-93 No Recovery 93-9.7 Silty Clay(CL), gray, wet. Soft, vfg 9.7-12 Sand(SP), H gray will orange, wet, on dange, vfg Borng completed @ 12 bgs	Sample: [CSCA-56-72-4-6-09C]
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-	'IN'

PROJECT NUMBER	BORING NUMBER		
377812	S673 / TW37	SHEET	OF

PROJEC	т(TO-1	1	CICA	LOCATION	amp Lejeunes NC	
ELEVATI			Surv		DRILLING CONTRACTOR SAEDA ELO		
VATER I			EQUIF	MENT HA	== START 7/21/09 10:10 FINISH 7/21/0	9 10 TO LOGGER 5 GENULL	
3c		SAMPLE		STANDARD	SOIL DESCRIPTION	COMMENTS	
DEPTH BELOW SURFACE (FT)	INTERVAL	NUMBER AND TYPE	RECOVERY (FT)	PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION	
- - - - - -		702	4'		0-1 Peat (Pt), black, dry, - loose, OM present, sand - and sult present 1-1.3 Sulty Sand (SM), gray, dry, m. dense, vfg, trace clay 1.3-4.5 Clayer Sand (SC): gray worrange streets, dry to moret.	KRF 2-4 : Not recorded KRF 4-6 96:19ppm, Zn.9ppm Fe Stotype 30 KRF 4-6 Not recorded	
16 -	8-12.	708-3	Ħ,		v. danse, vfg 4.5-9 Sandy Clay (CL), gray wlorange, moist, Stiff	Sample:	
	12-15	264	3,		9-10 Sandy Clay (CL), gray w/ - orange, wet, soft, some sitt - 10-135 Silty Sand (SM), gray, -	[CJCA-7673-4-6-09C]	
16-					boring complete @ 15' bgs	Well construction info 5-15' bgs 1" screen 0-4' bgs Burtonite chips 4-15' logs Sand 25'ags-5' bgs: 1" PVC carin	
						- A	

PROJECT NUMBER 377812

BORING NUMBER 5874

SHEET

OF /

PROJECT	CTO-	11 0	CA		LOCATION	Camp	Leseune	NC
ELEVATION	Not su	urveyed	DR	ILLING CONTRACTOR	- AF AA	CCO		
DRILLING ME	THOD AND EQU	IPMENT	PPT	Geo Probe	SUDT			
WATER LEVEL	s 12.5'	695		START 7/2/109	1115 FINISH 7	121/09 12	15 LOGGER	D. Brown / CLI

€F	SAMPLE			STANDARD	SOIL DESCRIPTION	COMMENTS		
DEPTH BELOW SURFACE (FT)	INTERVAL	NUMBER AND TYPE	RECOVERY (FT)	PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION		
	0-4		3'		1-4' Well graded sand with sitt - (SW-SM) light brown/cronge, Moist, loose, fine grouned	Cleared 0-5' With Hand Auger		
S -	4-8	09-2	η'		4-6' Clayer sand (SC) cronge, woist, medium dense, fine grained	_		
10 -	8-12	DP-3	ų [/]		6-8' Increanic Clay (CL) Crange, Maist, Stiff 8-9' Same as 1-4' - 9-12' Increanic Clay (CL)	Water Tuble at 12,5'		
- 15 — -	12-16	09-4	41		crange / grey, Meist, stiff 12-16' Clayer sand (sc) grey, wet, Medium dense, fine grained Color Change to Crange at	1135 - Stepped dvilling -		
- - - - -					14' End of boring 16' -	Collected CJCA-5874-2-		
-					-	XRF No Detections		
					-	- - -		

PROJECT NUMBER

BORING NUMBER

5875/TW38

SHEET

OF /

SOIL BORING LOG

PROJECT CTO-11 CJCA

LOCATION CAMP Leieune, NC

ELEVATION Not Surveyed DRILLING CONTRACTOR SAEDACCO

DRILLING METHOD AND EQUIPMENT DPT WITH Geoprobe SYDT

WATER LEVELS 11'695 START 12169 1155 FINISH 7/21/69 1230 LOGGER D. Brown/CLT

SF L	S	SAMPLE		STANDARD PENETRATION	SOIL DESCRIPTION	COMMENTS
DEPTH BELOW SURFACE (FT)	INTERVAL	NUMBER AND TYPE	RECOVERY (FT)	TEST RESULTS 6"-6"-6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
	6-4	pp-1	ų′		0-1' Well graded Sand (SW) Dark grey, dry, medium dose- fine grained. 1-4' well graded sand with Silt- (SW-SM) 119ht brown large	
5-	4-8	DP-2	ų′		Moist, Medium dense, fine grained. 4-5' clarer sand (SC) orange, Moist, dense, Il' fine grained,	
10 -	8-12	DP-3	4'		S-Mo Incrganic clay (CL) Crange/grey, Moist, Stiff Wet at 11' 11-12' Clayer Sand (Sc)	Water table at 11 1895-
15-	2-16	op 4	4'		grey/tan, wet, dense, - fine grained - 12-15' Silty Clay (CL) _	XRF reading S 4-6' Pb= 17 PPM As - 16 PPM Zn = 14 PPM
	6 - 20	DP-S	ų /		Grey, wet, dense, fine - grained	24' No detections
20-					17-20' Silty Sand (SM) = Crange/grey, wet, Medium = dense, fine grained:	-
					zo' end of bering -	Collected CTCA-5875-4-6-09 at 1230

PROJECT NUMBER

BORING NUMBER 58-76

SHEET

OF /

SOIL BORING LOG

PROJECT CTO-11

ELEVATION Not Surveyed DRILLING CONTRACTOR SADAECCO

DRILLING METHOD AND EQUIPMENT DATE Geoprobe 54 DT

WATER LEVELS 5 595

START TIBLES 645 FINISH 7/21/69 1705 LOGGER D. Brown / CLT

§C		SAMPLE		STANDARD	SOIL DESCRIPTION	COMMENTS
DEPTH BELOW SURFACE (FT)	INTERVAL	NUMBER AND TYPE	RECOVERY (FT)	PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
	0-4'	DP-1	3,5		0.5-2' Silty Clay (CL) Black/grey, Moist, Stiff, 2'-7' Inorganic Silt (ML)	Hand Auger Cleared O-S' bgs
5 -	11-81	DP-2	4'		Crangelgrey, Meist, Medium stiff, traces and 7-8' silty Sand (SM) light grey, wet, loose	Water at 8'b95
10-					fine grained - End of bering 8' -	2-4' Pb=10 PFM As=4 PPM Zn=9 PPM Cu=24 PPM Cu=24 PPM Cu=13 PPM Cu=13 PPM Callected Sample CJCA-5876-4-6-09() at 1710.

PROJECT NUMBER 3778/2 BORING NUMBER

SHEET

OF

SOIL BORING LOG

PROJECT CTC-11

ELEVATION Not Surveyed

DRILLING CONTRACTOR SADAECCO

DRILLING METHOD AND EQUIPMENT DPT Geoprobe S4DT

WATER LEVELS 10'695

START 7/21/09 1715 FINISH 7/21/09 1745 LOGGER 1. BYCAM (CLT)

SF.		SAMPLE		STANDARD	SOIL DESCRIPTION	COMMENTS
DEPTH BELOW SURFACE (FT)	INTERVAL	NUMBER AND TYPE	RECOVERY (FT)	PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
	0-4'	DP-I	2'		0-2' No Recovery 2-4' Silty Sand (SM) Blockbray, Moist, Medium dense, Medium grained Sand	Hand Auger Cleared 0-5'.
5 -	4.8	DPI	41		U-10' sandy Clay (CL) - Orange/tan, Moist, Stiff, - Some fine grained sand - 10-11' Inorganic Silt (ML) -	water at 10'
(o -	8-12	DP-3	ų ′		orange/grey, wet, - medium stiff, some - trace sand 11-12' Silty Sand (SM) -	-
-					orange/light grey, wet - loose, fine grained - Sand - End of Boring 12'	XRF Readings 2-4' Pb=7 PPM As-2 PPM 2n=13 PPM Cu=19 PPM 4-6' Pb=7 PPM As=15 PPM
-					- - - -	6-7' PB=11 PPM AS= 4 PPM Zn=24 PPM Collected Sample CJCA -5874-2-4-09C
		2			- - - -	6) 1750

PROJECT NUMBER

BORING NUMBER 50-78

SHEET

OF /

PROJECT	CTO	-11	LOCATION COMP Leseune, NC
	Not	Surveyed	DRILLING CONTRACTOR_SADAECCO
DRILLING ME	ETHOD AND	EQUIPMENT	PT Geoprobe 5401
WATERIEVE	10 10	has	START 7/21/09 1420 - 7/21/09 1450, 20050 D. BYCHO ///

&F _	SAMPLE	_	STANDARD PENETRATION	SOIL DESCRIPTION	COMMENTS
SURFACE (FT)	NUMBER AND TYPE	RECOVERY (FT)	RESULTS 6"-6"-6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
-	1 0P-1			0-1' No Recevery 1-2' Silty Sand (SM) Porth Brown, dry, medium - dense, fine grained -	Hand Auger Cleared C-5' 695.
5 - 4-1	3' 00-2	4'		1-4' Pacily Graded Sand (SP) - light tan, Maist, dense, fine grained, Trace sand -	-
0-8-1	2' 00-3	4'		4-11' Sand Clay (cr) light tan, Moist, Stiff fine grained wet at 10' 11-12' Clayer Sand (sc)	XRF 2-4' Pb= 3 PPM As- 6 PPM Cu = 5 PPM
-					4-6' Pb = 76 PPM Zn = 32 PPM Cu = 26 PPM 6-7' Pb= 18 PPM As = 3 PPM Zn = 10 PPM Cu = 5 PPM
-					Collected Sample CJCA - SB78-4-6-09C 6) 1500
-				- - -	
_				-	

PROJECT NUMBER 377812

BORING NUMBER IRIS-SBOIL SHEET

OF (

PROJECT	CT	0-011	<u>-</u>	LOCATION	Camp Lejeune, uc
	Not	surveyed	DRILLING CONTRACTOR _	SAEDA	
DRILLING ME		ND EQUIPMENT _	PowerProbe 9500 U		29/09 1320 LOCCED DIBYOUN (CL)

T T	ELS /		SAME SAME STATE OF THE SAME ST	1962 SHEEL HOLDS - 2015	OGGER DIVINITEET
§€ —	SAMPLE		STANDARD PENETRATION TEST	SOIL DESCRIPTION	COMMENTS
DEPTH BELOW SURFACE (FT)	NUMBER AND TYPE	RECOVERY (FT)	TEST RESULTS 6"-6"-6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
-	4 00-1	1'		0-3' No Recovery 3-4' Silty Sand (SM) light brown/tan, Maist, loose, fine grained	Hand Auger Cleared O-5' b95
5 - u-	8' DP-2	4'		4-5' Sand (SP) White/grey, Meist, Icase, fine grained S-6' Clayer Sand (SC) Orange/tan, Maist, dense,	XRF 2-4' Fe = 1c1ppm - 4-6' Pb=12 PPM Cu=7 PPM Fe = 242 PPM
				fine grained 6-8' Sand / Clay (CL) Orange, Maist, Stiff End of Balting 8' bgs	6-7' Fe = 32 PPM Cu = 2 PPM FID - No readings Collected Sample IR15-SBOI-4-6-09C @ 1320
- - - - -				-	_
-					

PROJECT NUMBER 377812 **BORING NUMBER**

IRIS-5802/TWOI SHEET

OF /

SOIL BORING LOG

CTO-011 PROJECT ____

LOCATION IRIS

Camp Lejeune, NC

DRILLING METHOD AND EQUIPMENT POWER Probe 9500 UTR
WATER LEVELS 14.5 695 SAEDACCO

START 7/26/09 1530 FINISH 7/26/09 1620 LOGGER DE Brown / CLT

	SAMPLE		STANDARD	SOIL DESCRIPTION	COMMENTS
INTERVAL	NUMBER AND TYPE	RECOVERY (FT)	PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
		3'		0-1' No Recovery 1-2' silty sand (SM) lightgrey/brown, Moist, loose, fine grained	Hand Auger cleared C-s' bgs.
y-8'	OP-2	3'		orange/tan, Moist, Medium dense, fine grained 3-4' Silty Sand (SM) light grey, Moist, Medium	FID- Ne detections in sample bags XRF- No detections
8-12'	043	3'		4-5' No Recovery 5-6' Same as 3-4'	in sample bags
12-16	DP-4	4'		Stiff 8-9' No Recovery 9-20' Sand (SP)	water tuble @ 14,5'b95. Collected Sample IRIS-SBOZ-2-7-096 and
16-20	DP-S	41		Fine grained. wet 614.5'	IAIS-58020-2-7-09C @1620 well construction Details
				End of boring 20 bys	IRIS-TWOI I" Pre-packed Screen I hag # 2 sand
					Screen: 10-20' 695 Sand: 10-20' 695 Bentanite: 9-10' 695 Well set at 20' 695
	12-18-12-13-16-1	8-13, 01-3 10-4, 01-3 10-4, 01-3	0-4' DP-1 3' 4-8' DP-2 3' 8-12' DP-3 3'	PENETRATION RESULTS 6'-6'-6' 12-16' DP-1 3' 12-16' DP-4 4'	PENETRATION RESULTS SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY O-4 DP-1 3' U-8' DP-2 3' U-8' DP-4 4' U-8' D

PROJECT NUMBER 3778/2 BORING NUMBER IR 15-5803

SHEET

OF /

PROJECT	CTO-Oll	LOCATION COMPLETEURE, NC
	Not surveyed	DRILLING CONTRACTOR SAEDACCC
DRILLING MI	ETHOD AND EQUIPMENT	Pawel Piche 9500 UTR
WATER LEVE	ELS NA	START 7/4/09 1300 FINISH 7/29/09 1300 LOGGER D. BYCUM/CLI

	SAMPLE STANDARD DENETRATION			STANDARD	SOIL DESCRIPTION	COMMENTS
SURFACE (FT)	INTERVAL	NUMBER AND TYPE	RECOVERY (FT)	PENETRATION TEST RESULTS 6"-6"-6"	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
-	O-1	01-1	2'		0-2' No Recovery 2-4' Silly Sand (SM) lightbrown/tan, Mcist, loose, fine grained	Hand Auger Cleared 0-5' 695
5 - - -	ų-8'	ÓP-2	Ч'		4-5' Clayey Sand (SC) light grey, moist, dense, fine grained 5-7' Sand Y Clay (CL)	XRF 2-4' Fe= 132 PPM 4-6' Fe= 101 PPM 6-7' Fe= 89 PPM
-					crange, ucist, stiff 7-8' Sand (SP) white/grey, Mcist, losse, fine grained. End of Bering 8'bgs	FID - No Readings Collected Sample IRIS-5803-2-7-090 @ 1330
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-						-
()					_	
) -						
					-	-
	-				-	-

PROJECT NUMBER 377812

BORING NUMBER

IRIS-SBOY/TWO2 SHEET

1 OF)

SOIL BORING LOG

CTO-Oll PROJECT _ ELEVATION Not surveyed

LOCATION IRIS COMPLETEURE, NC

Power Probe 9500 VTR

074DT7/27/09 0830 7/27/00 09/0 D. Aroun / LIT

ŠF		SAMPLE	=	STANDARD	SOIL DESCRIPTION	COMMENTS
DEPTH BELOW SURFACE (FT)	INTERVAL	NUMBER AND TYPE	RECOVERY (FT)	PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
	o-4'		2'		0-2' No Receivery 2-3' silty sand (SM) Black/grey, Moist, loose, fine grained	0-5' bgs Cleared with hand Auger
5 -	u-8'	09-2	γ'		3-4' Sand (SP) white/tan, Moist, loose, fine grained 4-5' clayer Sand (Sc) grey/tan, Moist, dense,	XRF and FID No detections
lo -	8-12'	DP-3	ч'	-	fine grained 5-7' Sandy Clay (CL) Orange/tan, Moist, Stiff 7-14' Sand (SP) white/grey, Moist, Icose, fine grained	Water table @ 15,5' Collected Sample IRIS-5804-2-7-09C @ 0900
Is -	12-16'	DP-4	γ'		14-15' Sandy Clay (CL) Same as S-7' 15-20' Sand (Sp) White with crange	IRIS-TWOZ Well Construction details Well set to 20' 695
20-	16-20	09-5	4'		Streaks, Wet, loose, fine grained. End of boring 20' 695	Using I" Pre-packed Screen. I bag of # 2 Sand Screen: 10-20' b95 Sand: 10-20' b95 Bentonite: 9-10' b95

PROJECT NUMBER 377812

BORING NUMBER

IRIS-5805/7W03

SHEET

1 OF /

SOIL BORING LOG

ERION ERION	LEVELS	ATT PURSON TO STATE	1	OTANGLOG		COMMENTS
ØE.		SAMPLE		STANDARD PENETRATION	SOIL DESCRIPTION	COMMENTS
DEPTH BELOW SURFACE (FT)	INTERVAL	NUMBER AND TYPE	RECOVERY (FT)	TEST RESULTS 6"-6"-6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
-	o-4'	09-1	2		0-2' No Recovery 2-2.5' Peat (Pt) Black, Maist, loose 2.5-3.5' Silty Sand (SM)	Hand Auger Cleared 0-5' 695
5 – -	4-8'	DP-2	ų'		grey/tan, Maist, loose, - fine grained — 3.5-4.5' Clayey Sand (sc) _ grey/orange, Moist, dense, fine grained	Water table @ 14'bgs
					4.5-5.5 Sandy Clay (CL)	XRF and FID
0 -	8-12'	00-3	4'		lightgrey/orange, Moist, - Stiff	No detections
		VI)			S.S-16' Sand (SP) white/crange, Maist, lase, fine grained	Oriller could not drill Past 16' bgs.
- 5 -	12-16	9P-4	4'		wet 6) 14' bgs	*
) -	_	-			End of Boring Log 16' -	IRIS-TW03 Construction details
9						well set to 18' b95 using I" pre-packed scree Controller used Reserved Sand (1 bag #2 sand)
					-	Screen: 8-18' 695 Sand: 8-18' 695 Bentonite: 7-8' 695
					_	Collected Samples @ 094. IRIS-5805-2-7-09(IRIS-5805-2-7-09(-MS IRIS-5805-2-7-09(-50)
19						
5	-					

PROJECT NUMBER 377812

BORING NUMBER

IRIS SOOG/TWOY SHEET

1 of 1

SOIL BORING LOG

PROJECT CTG-011
ELEVATION Not Surveyed

LOCATION IRIS COMP Lejeune, NC

DRILLING CONTRACTOR SAEDACCO

DRILLING METHOD AND EQUIPMENT POWER Probe 9500 UTR

WATER LEVELS 13, 5' 695 START 7/27/09 1050 FINISH 7/27/09 1110 LOGGER D. BYCUN / CLT

10000	1		5 69		SIAHITIATION FINISH TATE	1 LOGGER V. SVEWN / ECT
Ø.E.		SAMPLE		STANDARD PENETRATION	SOIL DESCRIPTION	COMMENTS
DEPTH BELOW SURFACE (FT)	INTERVAL	NUMBER AND TYPE	RECOVERY (FT)	TEST RESULTS 6"-6"-6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
-	o-4 ¹	08-1	2'		0-2' No Recovery 2-4' Sand (SP) white/grey, Moist, loose, fine grained	Hand Auger cleared U-S' 695
5 -	4-81	11-2	y'		4-5' (la Yey sand (sc) light grey, Moist, dense, _ fine grained 5-7' Sandy Clay (CL) crange/tan, Moist, very Stiff	
10-	8-12	09-3	3'		7-8' Sand (SP) Same as 2-4' 8-9' No Recovery 9-16' Sand (SP)	Water table @ 13.5'bgs- Driller could not drill deeper than 16' 695
15 -	12-16'	DP-4	y'		white/grey, woist, loose, fine grained: orange staining@13' wet @13.5' End of Boring 16'bgs	IRIS-TWOY Construction details I" Pre-pacted screen-
_					Ena of bonny 18 292	bag cf # 2 sand well set @ 18' b95 Screen; 8-18' b95 Sand: 8-18' b95 Bentanite; 7-8' b95
					-	No detections
						Collected Sample IRIS-SB06-2-7-09C DIIIO.
						-

PROJECT NUMBER 377812 BORING NUMBER

IRIS-5807/TWOS SHEET

1 OF 1

SOIL BORING LOG

PROJECT CTO-011

LOCATION Camp Lejeune, NC

ELEVATION Not SURVEYED DRILLING CONTRACTOR SAEDACCO

DRILLING METHOD AND EQUIPMENT POWER Probe 9500 UTR

WATER LEVELS 10' b95

START 7/27/09 1140 FINISH 7/27/09 1215 LOGGER D. Brown /CLT

(25,00) 25,00	LEVELS	3 10	095	1	START 727/09 1170 FINISH 727/0	9 1215 LOGGER D. Brown / CLT
&E		SAMPLE	_	STANDARD PENETRATION	SOIL DESCRIPTION	COMMENTS
DEPTH BELOW SURFACE (FT)	INTERVAL	NUMBER AND TYPE	RECOVERY (FT)	TEST RESULTS 6"-6"-6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
	0-4	09-1	21		0-2' No Recovery 2-4' Silty Sand (SM) 9'ex, Maist, loose, fine grained	Hand Auger Cleared 0-s' bgs.
5 -	4-8'	OPZ	3'		4-5' No Recovery S-6' Clayey Sand (sc) Port grey, Moist, Medium dense, fine grained 6-10' Sand (sp)	FID - No Detections - water table @ 10' bgs
10-	8-12	DP-3	4'		white/grey, moist, loose, _ fine grained wet @ 10' 10-12' sandy Clay (CL)	Driller could not drill deeper than 12' 695.
-					lightgrey/crange, wet - Stiff - End of Boring 12' bgs - - -	IRIS-TWOS Well Construction details I"Pre-Packed screen 1/2 bag # 2 sand. Screen: 6-16' bgs Sand: 6-16' bgs Bentonite: 5-6' bgs Well set 16' bgs @)1220
						(ollected sample - IRIS-SB07-2-4-09C - @) 1210 -

PROJECT NUMBER

3TR12

BORING NUMBER

| L15- 3608 SHEET | OF |

SOIL BORING LOG

PROJECT _CTO-11 CS/A LOCATION Camp Legure Not Surveyed ELEVATION TAEDACIO DRILLING CONTRACTOR. DRILLING METHOD AND EQUIPMENT 16 & NT W/sepprobe 54BT WATER LEVELS _ 4.5' START 1245 7/29/09 FINISH 1305 7/29/09 LOGGER 3 Beville STANDARD PENETRATION TEST RESULTS DEPTH BELOW SURFACE (FT) SAMPLE SOIL DESCRIPTION COMMENTS RECOVERY (FT) NUMBER AND TYPE SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY DEPTH OF CASING, DRILLING RATE, INTERVAL DRILLING FLUID LOSS, OR CONSISTENCY, SOIL STRUCTURE, TESTS AND INSTRUMENTATION 6"-6"-6" MINERALOGY (N) 0-4 Filty Sand (SM)! most, horse vig 4-6 Clayery Sand (SC), gray-wet, malense, vig fg _ water @ 4.5' bgs 4 0-4 1-10 4-8 191-2 4 6.8 Sandy Clay (CL) wangs wet, M. Stiff, Vfg Boring complete @ 8' hos

PROJECT NUMBER
377812
BORING NUMBER
1145-5609
SHEET 1 OF 1

PROJECT	CT0-11	SCA		West -	LOCATION -	Camp	Leienne	
ELEVATION No	+ survey	12d	_ DRILL	LING CONTRACTOR			8	
DRILLING METHOD	AND EQUIPME	NT NA						

WATER	LEVELS	·			START 1330 7/29/19 FINISH 1340	7/29/09 LOGGER Sperth
%F.		SAMPLE		STANDARD PENETRATION	SOIL DESCRIPTION	COMMENTS
DEPTH BELOW SURFACE (FT)	INTERVAL	NUMBER AND TYPE	RECOVERY (FT)	TEST RESULTS 6"-6"-6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
-	0-4	D6-1	2		0-2 No kerovery 2-25 Clargey Sand (SC), tan, - dry, dense, Ag	-
-	41-7	Dt-5	4		2.5-3.5 Rusty Metal flagments. 1-30 mm diameter 3.5-6 Claugy Sind (SC), tan.	-
-					dry, denn, vfg. same metal =	Sample: - IR15-S609-2-7-09C
-					6-8 Sand (SP). H gray, dry,	-
-					Baring completed @ 8' bgs _	_
-						-
-					_	_
-					-	_
-					-	-
-					-	-

PROJECT NUMBER 377812 BORING NUMBER
IR15-5810

SHEET

OF /

PROJECT	CTC-011			LOCATION	COMP LEXCUP	e, uc
ELEVATION	Not surveyed	DRILLING	CONTRACTOR _			7
	THOD AND EQUIPMENT					
WATER LEVE	LS NA	STA	RT7/29/09 1335	FINISH 7/29/	69 1345 LOGGER	O. Brown/co

ŠF.		SAMPLE		STANDARD	SOIL DESCRIPTION	COMMENTS
DEPTH BELOW SURFACE (FT)	INTERVAL	NUMBER AND TYPE	RECOVERY (FT)	PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
	0-41	0P-l	3		0-1' No Recovery 1-1.5' Peat (Pt) Block, Moist, Icose 1.5-2.5' Clayer Sand (Sc)	Hand Auger Cleared _ O-5' bg5.
S-	4-8'	DP-2	4'		crange/tan, Mcist, lose, - fine grained 2.5-3' Sand (SP) white/grey, Maist, loose, -	FIL 2-4' 0.18PM -
-					fine grained 3-4' Clayer Sand (sc) orange, Moist, Icase, fine grained 4-7' Sandy Clay (CL) crarge/tan, Moist, Stiff 7-8' Sand (SP) Same as 2.5-3' End of Boing Log 8' bgs	XRF >-4' Rb=5PPM Fe=44PP SF=10PPM Pb=3PPM ZN=17PPM 4-6' Fe=57PPM 6-7' Fe=32PPM Collected Sample IRIS-5010-2-4-09C @ 1400
-						- - -
-						- - - -
					- -	-

PROJECT NUMBER

377812 BORING NUMBER

TRI7- TSO1 SHEET OF |

					SOIL BORI	NG LOG
ROJE	ст	CTO	-11	CJCA	LOCATION	camp lejenne, No
			Sur		DRILLING CONTRACTOR SAEDALLO	()
RILLIN	IG MET	HOD AN	D EQUI	PMENT H	A & DPT W/ Geographe 54DT	
	LEVELS	3	5'6	95	START 09 10 7/27/09 FINISH 0920	7/27/09 LOGGER S. BENULL
SE.	_	SAMPLE	_	STANDARD PENETRATION	SOIL DESCRIPTION	COMMENTS
DEPTH BELOW SURFACE (FT)	MAL	NUMBER AND TYPE	RECOVERY (FT)	TEST RESULTS	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS.
HFA	NTERVAL	BAG T T	000	6*-6*-6*	OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	TESTS AND INSTRUMENTATION
2 K	Z	žž	発圧	(N)	The state of the s	Mari A
-					0-1 No Recovery	KRF (ppm) FID (ppm)
-	0-4	1-90	3		1-4 Clause S. 1 (50) by -	2.1111
_		150)	i	1-4 Clayery Sand (SC) tan,	24 NK
					moiss, vidense, uta	
						4-6' Not collected (wet)
5 -	1				V V	water @ 5' bas -
-	4.8	D1-7	3		5-8 Sitty Sand (SM), tan, -	67. Not collected (wet)
-	1				wet, m. derse, vfg, Littleday -	
-	-	-			wer, maurie, viz.	
-	1				Barrage lated 28' bas -	Sample:
10	-				Boring completed @8' bas _	3.17
					-	[1R17-5801-2-4-09C]
-	1				-	@ 09:25
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PROJECT NUMBER
377812

BORING NUMBER

IRI7-5802/7WOI SHEET

1 OF 1

SOIL BORING LOG

PROJECT CTC-Oll

ELEVATION Not Surveyed DRILLING CONTRACTOR DRILLING METHOD AND EQUIPMENT Power Probe 9500

WATER LEVELS 12' b95 START 7/28/09 10

LOCATION IR17 Camp lejeune, NC

ING CONTRACTOR SAEDACCO
COS 9500 UTR
START 7/28/09 1000 FINISH 7/28/09 1030 LOGGER D. Brown /CLT

LEVELS	-	_	1	START //28/09 [000 FINISH //28/0	2000011
	SAMPLE	1	STANDARD PENETRATION	SOIL DESCRIPTION	COMMENTS
INTERVAL	NUMBER AND TYPE	RECOVERY (FT)	TEST RESULTS 6"-6"-6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
0-41	09-1	2'		0-21 No Recovery 2-41 Silty Sand (SM) Brown/grey, Moist, loose, fine grained	Hand Auger cleared 0-5' 695
4-8'	09-2	ч'		4-lo' Clayey Sand (Sc) lightgray/arange, Maist, dense, fine grained lo-12' Sandy Clay (CL)	_
8-12'	DP-3	ч′		light grey with crange Streaks, Moist, Stiff - 12-16' Sand(sp) tan/grey, wet, loose,	Water table @ 12'695 XAF No Detections FID - No Detections
12.16	09-4	41		End of Boring 16' bgs	Collected Sample IRI7-5802-2-7-09C @ 1030
				-	IRIT-Twol Construction DetailS I" Pre-packed screen I Bag of #2 Sand well set at 16' bgs Sand: 6-16' bgs Screen: 6-16' bgs Bentonide: 5
				-	Bentonite; 5-6'695
	0-4,		0-4' 0P-1 2' 4-8' 0P-2 4' 8-12' DP-3 4'	9-12' DP-3 4'	SAMPLE STANDARD PENETRATION TEST RESULTS O-4' OP-1 U-9' OP-2 U-9' OP-2 U-9' OP-3 U-10' Clayey Sand (Sc) light gray / arange, Maist, den se, fine grained U-10' Clayey Sand (Sc) light gray with arange Streaks, Maist, Stiff 12-16' Sand (SP) tan/grey, wet, loose, fine grained U-10' Clayey Sand (Sc) Light grey with arange Streaks, Maist, Stiff 12-16' Sand (SP) tan/grey, wet, loose, fine grained

PROJECT NUMBER 377812

BORING NUMBER
IN17-5803

SHEET

1 OF 1

SOIL BORING LOG

PROJECT CTG-011

LOCATION IR17 CAMP Lejeune, NC

ELEVATION Not Surveyed DRILLING CONTRACTOR SAE DACCO

DRILLING METHOD AND EQUIPMENT FOWER Probe 9500 VTR

WATER LEVELS NA START 7/28/09 1055 FINISH 7/28/09 1110 LOGGER D. Brown /CLT

30		SAMPLE		STANDARD	SOIL DESCRIPTION	COMMENTS
DEPTH BELOW SURFACE (FT)	INTERVAL	NUMBER AND TYPE	RECOVERY (FT)	PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
	0-4	DP-1	2.5'		0-1.5' No Recovery 1.5-2' Silty Sand (SM) light brown/grey, Maist, loose, fine grained	Hand Auger Cleared 0-5' bg5
S -	ų-8 ¹	09-2	η'		2-3.5' Clayey Sand (SC) light brown/grey, Mcist, dense, fine grained 3.5-8' Sandy Clay (CL) light grey with crange	XAF No Detections -
-					Streaks, moist, stiff - End of Boring Log 8'bgs_	(cllected samples IRI7-5803-2-7-09C 6) 1110 IRI7-5803D-2-7-09C 6) 1115
-					-	- - - -
-					-	
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-					_	
	-					-
	-				-	-

PROJECT NUMBER

377812

SHEET

1 of 1

IR17-5804/TWOZ SOIL BORING LOG

PROJECT CTO-Oll

ELEVATION Not Surveyed DRILLING CONTRACTOR SAEDACCO

DRILLING METHOD AND EQUIPMENT Power Probe 9500 UTR

WATER LEVELS 11' b95

START7/28/09 1130 FINISH7/28/09 1150 LOGGER D. Brown/CLT

	SAMPLE		STANDARD	SOIL DESCRIPTION	COMMENTS
INTERVAL	NUMBER AND TYPE	RECOVERY (FT)	TEST RESULTS 6"-6"-6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
0-41		3'		0-1' No Recovery 1-2' Silty sand (SM) light brown/grey, Maist, loose, fine grained.	Hand Auger Cleared O-5' bgs
ų-8'	09-2	4'		light grey, maist, dense, — fine grained, — 4-9' sandy clay (cl) —	Water table @ 11'bgs
8-12'	DP-3	ų'		9-11' Same as 2-4' 11-12' Sound (SP) 9rey with crange Staining, - wet, loose, fine grained	XRF No Detections FID No detections Driller could not drill
				End of Bering 12' 695	deeper than 12' b95. IRIT-TWOD Well Construction details well set to 17' b95 Screen: 7-17' b95 Sand: 7-17' b95 Bentonite: 5-7' b95
				-	Collected Sample IRI7-5804-2-7-09C @1200
				-	
	8-h		0-4' 0P-1 3'	O-4, 06-1 3, believed the secondary of t	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY O-4' OP-1 O-1' No Recovery I-a' Silty Sand (SM) light brown/grey, Moist, loose, fine grained. Ight grey, Moist, dense, fine grained. U-9' Sand y Clay (CL) light grey/tan, Moist, Stiff O-1' Same as 2-4' II-12' Sand (SP) grey with crange Staining,

PROJECT NUMBER 3778/2 BORING NUMBER
IR17-5805

SHEET

OF /

SOIL BORING LOG

CTO-Oll LOCATION IRI7 Camp Leseune, NC **PROJECT** ELEVATION Not Surveyed DRILLING CONTRACTOR __SAEDACCO 9500 UTR Power Probe DRILLING METHOD AND EQUIPMENT START 7/28/09 1330 FINISH 7/28/09 134/5 LOGGER D. Brown /CLT WATER LEVELS NA DEPTH BELOW SURFACE (FT) SAMPLE STANDARD SOIL DESCRIPTION COMMENTS PENETRATION TEST DEPTH OF CASING, DRILLING RATE, RECOVERY (FT) SOIL NAME, USCS GROUP SYMBOL, COLOR, NUMBER AND TYPE RESULTS NTERVAL MOISTURE CONTENT, RELATIVE DENSITY DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION OR CONSISTENCY, SOIL STRUCTURE, 6"-6"-6" MINERAL OGY (N) Hand Auger Cleared 0-2' No Recovery 1-21 Silty sand (SM) 0-5' 695 21 0-4' 09-1 black/brown, Moist, loose, fine grained 2-4' Clayey Sand (Sc) tanlorange, Moist, dense, fine grained 5 41 4-81 No Detections DP-2 4-8' Sandy Clay (CL) tan/grey, Moist, Stiff FIO No detections End of Boring Log 8'695 collected sample IR17-5805-2-7-09C (a) 1400

PROJECT NUMBER 3778/2 BORING NUMBER
IR85-5806

SHEET

OF/

PROJECT	CT0-01	LOCATION CAMP Lejeune, NC				
	Not Surveyed	DRILLING CONTRACTOR SAEDACCO				
		Power Probe 9500 UTR				
WATER LEVE	LS NA	START 7/29/69 0826 FINISH 7/29/69 0840 LOGGER D. Brown / C	67			

Š₽		SAMPLE		STANDARD	SOIL DESCRIPTION	COMMENTS
SURFACE (FT)	INTERVAL	NUMBER AND TYPE	RECOVERY (FT)	PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
	0-4'	PP-1	2		0-21 Ne Recovery 2-31 Silty Sand (SM) brown/blacky Moisty loose, fine grained	Hand Auger cleared 0-51 bg5
S -	11-8	08-2	Ч		3-5' Clayer sand (sc) _ orange/tan, ucist, dense, _ fine grained _ 5-8' Sand (SP)	FID Ne Readings
-					thite/grey, Mcist, dense, fine grained	Collected Samples IR85-5806-2-7-09C IR85-5806-2-7-09C-MS IR85-5806-2-7-09C-50
-					-	₩ 0850
1					-	
					-	
-					-	,
3					-	

PROJECT NUMBER
377812

BORING NUMBER

IRSS-5807

SHEET

1 OF 1

SOIL BORING LOG

CTO-Oll camp Lejeune, NC **PROJECT** LOCATION DRILLING CONTRACTOR SAEDACCO Net surveyed ELEVATION Power Probe 9500 UTR DRILLING METHOD AND EQUIPMENT WATER LEVELS NA START 7/28/09 1640 FINISH 7/28/09 1650 LOGGER D. Braun / CL T DEPTH BELOW SURFACE (FT) SAMPLE STANDARD COMMENTS SOIL DESCRIPTION PENETRATION TEST RECOVERY (FT) DEPTH OF CASING, DRILLING RATE, SOIL NAME, USCS GROUP SYMBOL, COLOR, INTERVAL NUMBER AND TYPE RESULTS MOISTURE CONTENT, RELATIVE DENSITY DRILLING FLUID LOSS, OR CONSISTENCY, SOIL STRUCTURE. TESTS AND INSTRUMENTATION MINERAL OGY (N) Hand Auger Cleared 0-2' No Recovery 21 0-5' 695 2-3' Silty Sand (SM) 0-4 0P-1 grey/brown, Moist, loose, fine grained 3-4' Clayey Sand (SC) 5 tanlorange, Mcisti 3 4-8 09-2 Medium dense, fine grained. 4-7' No Detections 4-5' NO RECOVERY 5-8' Sand (SP) Collected Sample white/grey, moist, loose, fine grained 10 IR85-5807-2-4-09C @ 1655 End of Boring Log 8' bgs

PROJECT NUMBER 377812

BORING NUMBER

IR85-5807/TW06 SHEET

/ OF /

SOIL BORING LOG

PROJECT CTO-OII

LOCATION IR85 CAMP Lejeune, IC

ELEVATION Not SURVEYED DRILLING CONTRACTOR SAEDACCO

DRILLING METHOD AND EQUIPMENT POWER Probe 9500 UTR

WATER LEVELS II'bgs START 7/28/09 0820 FINISH 7/28/09 0845 LOGGER D. Brown / CLT

ŠF.		SAMPLE		STANDARD	SOIL DESCRIPTION	COMMENTS
DEPTH BELOW SURFACE (FT)	INTERVAL	NUMBER AND TYPE	RECOVERY (FT)	PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
	0-4'		3'		0-1' No Recovery 1-2' Silty Sand (SM) brown/black, Maist, loose, fine grained	Hand Auger cleared 0-5' 695
5 -	ų-8'	19-2	y'		2-6' Clayey Sand Lsc) Crange/tan, Mcist, dense, fine grained 6-11' Sand (SP)	No Detections
10 -	8-12'	DP-3	ч′		light grey/white, Moist, loose, fine grained 11-16' Clayey Sand (sc) light grey, wet, medium dense, fine grained	Water table 6) 11 bgs Callected Sample IR85-5807-2-7-096 6) 0850
15 -	12-16'	09-4	4'		End of Boring 16' bgs	Driller could not drill deeper than 16' 695,
						IR85-Two6 well, Construction Details well set to 16' b95 using 1" pre-packed Screen. Screen. 6-16' b95 Sand: 6-16' b95 Bentonite: 5-6' b95
-					-	

PROJECT NUMBER

BORING NUMBER
TR85-58-8

SHEET

1 OF 1

SOIL BORING LOG

CTO-OIL IR85 Camp Lejeune, Nr PROJECT . LOCATION ELEVATION Not Surveyed SAEDACCO DRILLING CONTRACTOR DRILLING METHOD AND EQUIPMENT Power probe 9500 UTR WATER LEVELS NA START 7/28/09 1710 FINISH 7/28/09 1730 LOGGER D. Brown /CLT DEPTH BELOW SURFACE (FT) SAMPLE COMMENTS STANDARD SOIL DESCRIPTION PENETRATION RECOVERY (FT) DEPTH OF CASING, DRILLING RATE, NUMBER AND TYPE TEST RESULTS SOIL NAME, USCS GROUP SYMBOL, COLOR, NTERVAL MOISTURE CONTENT, RELATIVE DENSITY DRILLING FLUID LOSS, OR CONSISTENCY, SOIL STRUCTURE, TESTS AND INSTRUMENTATION 6"-6"-6" MINERALOGY (N) No Recovery 0-1' Hand Auger cleared 3 1-3' Silty sand (SM) 0-5' b95. 0-4 OP-1 grey/brown, Moist, loose, fine grained 3-4' clayey sand (sc) tanlorange, Moist, dense, fine grained XRF No detections 4-8' DP-2 FID No Detections 4-5' No Recovery 5-8' Sand (SP) white / grey, Moist, loose, fine grained Collected Sample End of Boring Log 8'b95 IA85-5B08-6-7-09C @1725

PROJECT NUMBER 377812 BORING NUMBER

IR8S-5809/TWOS SHEET

) OF /

SOIL BORING LOG

PROJECT CTC-Oll

ELEVATION Not Surveyed DRILLING CONTRACTOR SAE DACCO

DRILLING METHOD AND EQUIPMENT Power probe 9500 UTR

WATER LEVELS 14' 695

START 7/27/09 1510 FINISH 7/27/09 1600 LOGGER DIBrown / CLT

30		SAMPLE		STANDARD	SOIL DESCRIPTION	COMMENTS
DEPTH BELOW SURFACE (FT)	INTERVAL	NUMBER AND TYPE	RECOVERY (FT)	PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
_	o-4'		3'		0-1' No Recover Y 1-3' Silty Sand (SM) grey/brown, Moist, loose, fine grained	Hand Auger Cleared 0-5' 695.
5 -	4-8'	DF-2	4'		3-4' Clayey Sand (sc) crange/tan, Moist, dense fine grained 4-6' Silty Sand (SM) Same as 1-3'	XRF No Detections FID No Detections
10-	8-12'	0p-3	ų'		6-20' Sand (SP) white/grey, moist, loose, fine grained wet 6) 14'	IR85-TWOS Construction details I"Prepacked Screen I bag of #2 Sand
- IS –	12-16	DP-4	ų'		color change: Black @13.5' - (dor change: Grey 14.5' - End of boring 20' b95 -	well set@ 20'695 Screen: 10-20'695 Sand! 10-20'695 Bentonite! 9-10'695
20-	16-26	DP-5	4'			Collected Sample IR85-SB09-2-7-09C GISSO
						water table 6,14 bgs
					(8.30)	REV 12/01 FORM D158

PROJECT NUMBER 377812

BORING NUMBER
IR85-5810 SHEET

of /

PROJECT	CT	0-011			_ I OCATION	CUN	of Leseur	ie, NC	
ELEVATION		Surveyed		*******	SAEDF			6:	
			wer probe	9500 V	TR	7/ //		1 2	7//
WATER LEVE	LS N/	4	START	7/29/090	100 FINISH 4	1/2/01	0940 LOGGI	ER DIBYOLL	NICLI

	NA	OTHERD .	START //29/69 0100 FINISH //24/	COMMENTS
SURFACE (FT)	AND TYPE AND TYPE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE,	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
- - - - -		6*-6*-6** (N)	MINERALOGY 0-2' No Recover Y 2-4' Clayer sand (Sc) Gange/tan, Maist, dense, fine grained 4-5' No Recovery 5-8' Sand (SP) White/grey, Maist, Icose, fine grained.	Hand Auger Cleared 0-5' bgs FID - No Detections XRF 2-4' No detections 4-6' Zn = 2225 PPM Cu = 4860 PPM 6-7' Zn = 75 PPM Cu = 143 PPM Pb = 671 PPM
-				

PROJECT NUMBER 377812 BORING NUMBER
IR85-58[]

SHEET

OF /

PROJECT	CTO-OII	LOCATION Camp Lejeune, NC
ELEVATION _	Not Surveyed	DRILLING CONTRACTOR SAEDACCO
DRILLING ME	THOD AND EQUIPMENT	Powel Prohe 9500 UTR
WATER LEVE	IS NA	START 7/29/09 0955 FINISH 7/29/09 1005 LOGGER D. Brown/CLT

§€	SA	AMPLE		STANDARD	SOIL DESCRIPTION	COMMENTS
DEPTH BELOW SURFACE (FT)	INTERVAL	NUMBER AND TYPE	RECOVERY (FT)	PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
-)-4' [2'		0-2' No Recovery 2.5-3.0' Peat (Pt) Black, Maist, loose 3-3.5' Silty sand (SM)	Hand Auger Cleared O-S' bgs
5-	-8 ⁱ	Op-2	41		grey/brown, Moist, loose, fine grained 3.5-S.o' Clayey sand (sc) - tan/orange, Moist, dense, -	XRE No Detections -
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-						_
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PROJECT NUMBER 377812

BORING NUMBER

[R85-5813/TW07 SHEET

OF)

	T	11.4		-011	DRILLING CONTRACTOR SAEDACCO									
LEVAT RILLIN IATER	ION IG METH LEVELS	HOD AN	DEQUIP b95	rveyed PMENT four	verprohe 9500 UTR	109 1445 LOGGER D. Brown /CL								
<u>}</u>		SAMPLE		STANDARD	SOIL DESCRIPTION	COMMENTS								
DEPTH BELOW SURFACE (FT)	INTERVAL	NUMBER AND TYPE	RECOVERY (FT)	PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION								
	041		2'		0-2' No Recovery 2-2.5' Peat (PT) Black, Moist, loose 2.5-3.5' Silty Sand (SM)	Hand Auger Cleared 0-5' 695.								
5 - -	4-8'	0P-2	4'		Brown, Mcist, loose, fine grained 3.5-6' Clayey Sand (CL) orange/tan, Maist, Medium dense, fine	Water table & 10' b95								
10 -	8-12	DP-3	ų ^r		grained 6-12' Sand (SP) White/grey, Moist, loose, fine grained wet @ 10' bgs	FID No Detections Collected Sample								
15-	12-16	DP-4	41		Driller could not drill beyond 12' b95	IR85-5813-2-7-09C @ 1500 IR85-Two7 well Construction Details								
-						well set to 17' b95 Using 1" pre-packed screen and 1 bag of #2 sand Screen: 7-17' b95 Sand! 7-17' b95 Bentonite: 6-7' b95								
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	4					-								
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PROJECT NUMBER 3778/2

BORING NUMBER IR85-5814

SHEET

OF/

PROJEC	т		C7	0-011	LOCATION	Camp Leleune, uc
		Not	Sur	veyed	DRILLING CONTRACTOR SAEDACO	
					reverbe 9500 UTR	
WATER						9 0920 LOGGER DIBrown/CLT
%€		SAMPLE		STANDARD PENETRATION	SOIL DESCRIPTION	COMMENTS
DEPTH BELOW SURFACE (FT)	NTERVAL	NUMBER AND TYPE	RECOVERY (FT)	TEST RESULTS 6"-6"-6"	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE,	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
SCI	Ž.	AN	黑匠	(N)	MINERALOGY	
-					0-2.5' No Recovery	Hand Auger cleared
-	0-41	DP-1	1.5'		Brown/grey, Mcist, lcose, fine grained	c-5' b95
-					3.5-6' Clayer Sand (sc)	_
5-	U-8'	0p-2	ч'		dense, fine grained -	FID - Ne reading 5
-					6-8' Sand (SP) - White/grey, Moistilcose, -	XRF - 2-4' Fe=123PFM - Cu=21PPM -
_					Fine grained	4-6' Fe = 175 PPM _ ZN = 3 PPM
-					-	6-7' Fe = 451 PPM -
-					-	Collected Sample -
-						IR85-5814-2-7-09C
_					_	@ 0915 -
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PROJECT NUMBER

BORING NUMBER

IR85-SBI7/TWO8 SHEET

OF /

SOIL BORING LOG

CTO-Oll LOCATION IRBS CAMP Lejeune, NC PROJECT ELEVATION Vot Surveyed DRILLING CONTRACTOR SAEDACCO DRILLING METHOD AND EQUIPMENT POWER Probe 9500 VTR WATER LEVELS 11' 695 START 7/28/09 1515 FINISH 7/28/09 1540 LOGGER DI Brown / CLT DEPTH BELOW SURFACE (FT) SAMPLE STANDARD SOIL DESCRIPTION COMMENTS PENETRATION TEST RESULTS NUMBER AND TYPE RECOVERY (FT) SOIL NAME, USCS GROUP SYMBOL, COLOR. DEPTH OF CASING, DRILLING RATE. MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, DRILLING FLUID LOSS. TESTS AND INSTRUMENTATION 6*-6*-6* MINERALOGY (N) 0-2' No Recovery Hand Auger Cleared 0-4 0-5' 695 2-3' Silty Sand (SM) DP-1 light brown/black, Moist, loose, fine grained 3-4' Clayey Sand (Sc) 5. tanlarange, maist, medium dense, fine grained 4-8' DP-2 4-5' No Recovery water table @ 11 bgs 5-8' Sand (SP) white/grey, Moist, loose, fine grained 10 -8-12' DP-3 Driller could not drill 8-9' No Recovery deeper than 16' b95 9-12' Sand (SP) white/grey, maist, dense, fine grained, wet & 11' bgs 6-7' CU= 7 PPM 12-16 DP-4 ZN= 21 PPM 12-15' No Recovery FID No Detection 5 15 -15-16' Sand (SP) Same as 9-12/695 Collected Samples End of Boring Log 16'695 IR85-5017-6-7-09C @ 1540 IR85-58170-6-7-09C a) 1545. IR85-Two8 Construction Details I" Pre-packed screen 1 Bag of #2 Sand Screen: 8-18'695 Sand: 8-18' h95 Bentonite: 7-8' b95 Well set to 18'695

	CH2IVIHILL
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TEST PIT NUMBER IRIS- TPOI

SHEET 1 OF 1

				EST PIT LOG
ROJECT		15	(SCA LOCATION: () CONTRACTOR: SAEDA	imp Johnson LOGGER: EMUST
LEVATION		PMENT USE	CONTRACTOR: SHEWA	DATE EXCAVATED: 7/27/09
VATER L		FIVIENT USE	APPROX. DIMENS: Length: 9 ft	Width: 2 f + Max. Depth: 2 f +
			SOIL DESCRIPTION	COMMENTS
DEPTH BELOW SURFACE (FT)	INTERVAL	NUMBER AND TYPE	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	DIFFICULTY IN EXCAVATION, RUNNING GRAVEL CONDITION, COLLAPSE OF WALLS, SAND HEAVE, DEBRIS ENCOUNTERED, WATER SEEPAGE, GRADATIONAL CONTACTS, TESTS, INSTRUMENTS. OVM (ppm): Headspace Analysis
1			O-1 - Topsoil - Sulty Sand DK guey fg sand + organ (roots) lower, dry - moist 1-2 - Sulty Sand (sm) Lt Tan fg sand & sult loose, mist, some roots Terminated @ 2' bys	0.0 1-1.5 0.0 1-5-2
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14_				-

CH2MHILL	
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TEST PIT NUMBER

377812

TP01

SHEET 10

TEST PIT LOG

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ATIO	N :										,										1 1				
		IPMENT	USED	:	Deer	e	31	Og									-		ED:	_7,	127/	99			
ER LE	VEL:				APPF	ROX. D	DIMEN	IS:	Lengt	th:	9	H			Width	٠,	24	L		- //5	Max.	Depth:	2	14	
			SOI	L DES	CRIPT	ION						i.					U	CO	MMEN	ITS				1	
NAME	E, USCS G	ROUP S	SYMBOL	, COLO	OR, MC	DISTUR	RE CO	NTENT	r, REL	ATIVE		DIFFIC	CULTY	IN EX	CAVAT	TION, F	NINNUF	NG GR	AVEL	COND	NOITION,	COLLA	APSE C	F WA	LLS,
ITY, O	R CONSIS	STENCY	, SOIL S	TRUC	TURE,	MINEF	RALOG	iY				September 1				NCOU	NTERE	D, WA	TER S	SEEPA	GE, GF	RADAT	IONAL	CONT	ACTS
										Te	est Pit	Dimen	tions (ft)											
	South																								
e (ft)		2	4		6		8		, 10		12		14		16		18		20		22		24		26
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	ATION AVATION ER LE	ATION : AVATION EQUIER LEVEL : NAME, USCS O	ATION: AVATION EQUIPMENT ER LEVEL: NAME, USCS GROUPS ITY, OR CONSISTENCY	ATION: AVATION EQUIPMENT USED ER LEVEL: SO NAME, USCS GROUP SYMBOL HTY, OR CONSISTENCY, SOIL S e (ft) 2 4	ATION: AVATION EQUIPMENT USED: ER LEVEL: SOIL DES NAME, USCS GROUP SYMBOL, COLO	ATION: AVATION EQUIPMENT USED: Deer ER LEVEL: APPE SOIL DESCRIPT NAME, USCS GROUP SYMBOL, COLOR, MO ITY, OR CONSISTENCY, SOIL STRUCTURE, e (ft) 2 4 6 7075611	ATION: AVATION EQUIPMENT USED: Deeve ER LEVEL: SOIL DESCRIPTION NAME, USCS GROUP SYMBOL, COLOR, MOISTUI ITY, OR CONSISTENCY, SOIL STRUCTURE, MINER	PATION: AVATION EQUIPMENT USED: Deere 310 ER LEVEL: APPROX. DIMEN SOIL DESCRIPTION NAME, USCS GROUP SYMBOL, COLOR, MOISTURE COLOR, OR CONSISTENCY, SOIL STRUCTURE, MINERALOG (ft) 2 4 6 8 TOPSOIL	ATION: AVATION EQUIPMENT USED: Deere 310 g ER LEVEL: APPROX. DIMENS: SOIL DESCRIPTION NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT OFFITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY (ft) 2 4 6 8 TOPEGIL	ATION: AVATION EQUIPMENT USED: Deere 310 a ER LEVEL: APPROX. DIMENS: Lenging SOIL DESCRIPTION NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELEITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY e (ft) 2 4 6 8 10	ATION: AVATION EQUIPMENT USED: Deere 310 g ER LEVEL: APPROX. DIMENS: Length: SOIL DESCRIPTION NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE HTY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY TOPSOIL	ATION: AVATION EQUIPMENT USED: Deere 310 g ER LEVEL: APPROX. DIMENS: Length: 9 SOIL DESCRIPTION NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE HTY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY Test Pit (ft) 2 4 6 8 10 12	ATION: AVATION EQUIPMENT USED: Deere 310 a ER LEVEL: APPROX. DIMENS: Length: 9 b SOIL DESCRIPTION NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE HTY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY Test Pit Dimen e (ft) 2 4 6 8 10 12	ATION: AVATION EQUIPMENT USED: Deere 310 g ER LEVEL: APPROX. DIMENS: Length: 9 H SOIL DESCRIPTION NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE HTY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY Test Pit Dimentions (e (ft) 2 4 6 8 10 12 14	ATION: AVATION EQUIPMENT USED: Deere 310 g ER LEVEL: APPROX. DIMENS: Length: 9 pt SOIL DESCRIPTION NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE SAND HEAVE, DETTY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY Test Pit Dimentions (ft) 14 17075011	ATION: AVATION EQUIPMENT USED: Deere 310 g ER LEVEL: APPROX. DIMENS: Length: 9 H Width SOIL DESCRIPTION NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE HTY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY Test Pit Dimentions (ft) e (ft) 2 4 6 8 10 12 14 16	ATION: AVATION EQUIPMENT USED: Deere 310 g ER LEVEL: APPROX. DIMENS: Length: 9 H Width: SOIL DESCRIPTION INAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE SAND HEAVE, DEBRIS ENCOUTESTS, INSTRUMENTS. Test Pit Dimentions (ft) e (ft) 2 4 6 8 10 12 14 16	AVATION: AVATION EQUIPMENT USED: Deere 310g DATE EXCAPRION. ER LEVEL: APPROX. DIMENS: Length: 9 H Width: 2 H	AVATION: AVATION EQUIPMENT USED: Deere 310g ER LEVEL: APPROX. DIMENS: Length: 9 H Width: 2 H SOIL DESCRIPTION NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE OITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY TESTS, INSTRUMENTS. Test Pit Dimentions (ft) e (ft) 2 4 6 8 10 12 14 16 18	DATE EXCAVATED: AVATION EQUIPMENT USED: Devre 310 g ER LEVEL: APPROX. DIMENS: Length: SOIL DESCRIPTION NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE OITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY Test Pit Dimentions (ft) Pe (ft) 2 4 6 8 10 12 14 16 18 20	ATION: AVATION EQUIPMENT USED: Deere 310 g ER LEVEL: APPROX. DIMENS: Length: 9 H SOIL DESCRIPTION COMMENTS NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE HTY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY TESTS, INSTRUMENTS. Test Pit Dimentions (ft) Pe (ft) 2 4 6 8 10 12 14 16 18 20	ATION: AVATION EQUIPMENT USED: Deeve 310 g ER LEVEL: APPROX. DIMENS: Length: 9	AVATION EQUIPMENT USED: Deere 310 g ER LEVEL: APPROX. DIMENS: Length: 9 H SOIL DESCRIPTION SOIL DESCRIPTION COMMENTS NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DIFFICULTY IN EXCAVATION, RUNNING GRAVEL CONDITION, COLLAR SAND HEAVE, DEBRIS ENCOUNTERED, WATER SEEPAGE, GRADAT TESTS, INSTRUMENTS. Test PIt Dimentions (ft) e (ft) 2 4 6 8 10 12 14 16 18 20 22	AVATION : AVATION EQUIPMENT USED: Deere 310 g ER LEVEL: APPROX. DIMENS: Length: SOIL DESCRIPTION NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE PITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY Test Pit Dimentions (ft) DATE EXCAVATED: 7/27/09 Max. Depth: 2 COMMENTS DIFFICULTY IN EXCAVATION, RUNNING GRAVEL CONDITION, COLLAPSE OF SAND HEAVE, DEBRIS ENCOUNTERED, WATER SEEPAGE, GRADATIONAL TESTS, INSTRUMENTS. Test Pit Dimentions (ft) DATE EXCAVATED: 7/27/09 Max. Depth: 2 COMMENTS TORSING THE PITY OF THE PIT	ACTION: AVATION EQUIPMENT USED: Deere 310 g ER LEVEL: APPROX. DIMENS: Length: 9 H Width: 2 H Max. Depth: 2 H SOIL DESCRIPTION NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE HITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY Test Pit Dimentions (ft) Test Pit Dimentions (ft) PARTICIPATION DATE EXCAVATED: 7/27/09 Max. Depth: 2 H Max. Depth: 2 H SOMMENTS DIFFICULTY IN EXCAVATION, RUNNING GRAVEL CONDITION, COLLAPSE OF WAS AND HEAVE, DEBRIS ENCOUNTERED, WATER SEEPAGE, GRADATIONAL CONTINUENTS. Test Pit Dimentions (ft) PARTICIPATION OF THE APPLICATION OF THE APPLI

OVM (ppm):

Breathing Zone Analysis

OVM (ppm): Headspace Analysis

0.0 ppm 0-1 1-2 0.0



TEST PIT NUMBER

SHEET 1 OF 1

BBO JECT	. 10	15	LOCATION: Com a la	.bc	LOGGER: EMUST
PROJECT ELEVATION		19	CONTRACTOR: SAEDACCO	nnson	LOGGER: ETTIOS
AND DESCRIPTION OF THE PARTY OF	The state of the s	PMENT USE	o: Deere 310a		DATE EXCAVATED: 7 27 09
WATER L	EVEL:		APPROX. DIMENS: Length: 10 ft	Width: 2	THE RESERVE OF THE PARTY OF THE
& F	SA	MPLE	SOIL DESCRIPTION	DIEEEOU II TO	COMMENTS
) EEC	T		SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT. RELATIVE DENSITY.		IN EXCAVATION, RUNNING GRAVEL COLLAPSE OF WALLS, SAND HEAVE,
FAC	\AL	ER	OR CONSISTENCY, SOIL STRUCTURE,		OUNTERED, WATER SEEPAGE,
DEPTH BELOW SURFACE (FT)	NTERVAL	NUMBER AND TYPE	MINERALOGY.	GRADATION	AL CONTACTS, TESTS, INSTRUMENTS.
	Z	Σ₹	n 65	OVM (ppm):	Headspace Analysis
			0-0.5 - Topson - Dr gray	_	1-2 by oxidatel suit and red brick & Puc Piping
1_			organic rich sult s send	0.0 ppm	oxidate Sil
7	ĺ		loose, most		1-2 byp rust staining
-	- 1		0.5-2.5 - Suty sand (sm) -		and red brick 37VC
2_	- 1			-	PiPing -
-	i i		Tan As Sand & Sult, loose	-	
3_	- 1		moist, some brick + puc		0.0ppm Ron 0-35 by
			2.5-3 - Sety Sand (Sm) -		
4_			Drange of sand + set , louse -	4	_
_			mist		
5_			3-3.5 - Sand (SP) - L+ 7an -		
			fy sand, loose, moist		
6_			Jan, 1002, Mast		
_			Terminated @ 3.5'bas		
7_			Committages & 33 bigs		-
_				_	
8			n=	-	12
-			9	-	
9_			±-	-	-
_				-	14
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13_					
14			2		
14 —					-

•	CH2MHILL
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TEST PIT NUMBER

1RIS-TPOZ

SHEET 10

TEST PIT LOG

PROJEC	contract of	IR15		V			LOC	ATION	1: (amp	اهل	hns	son						LOG	GER	: E	mi	tst/F	DU	
ELEVAT		OLUDNE	NITLIC	·	7	(30.41) E	D	15 -		_						DATE	EXC	A\/AT	ED.	¬ 1.	2-1	00			
		QUIPME	NI US	SED:	Dee			109		ii. v				_	Width			and the local designation in the last	ED:	11	27/0			F 0.	
WATER	LEVEL	:					DIMEN	15:	Length	n:]	00	1		_	vvidtn		21				Max.	Depth	1: 3.	5 41	sys
				SOIL DES	-						\rightarrow					Western T			MMEN					051111	
The state of the s		CS GROU NSISTEN							T, RELA	COM 7. 781. 1948 L	-	SAND TESTS	HEAV S, INST	E, DEE	BRIS E						OITION, AGE, GF				
										Tes	st Pit D	Dimen	tions (ft)											
	-	丰	ï			1	ř.	ï	1 1		1							F			1 1			. !	
Scale (ft)	2		4	6		8		10		12		14		16		18		20		22		24		26
	1-	+	-	106	50:1	-	-																		
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				SM					7																
4				SP					PT																
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6									\Box		\neg														
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12																									
202																									

OVM (ppm):

Breathing Zone Analysis

OVM (ppm): Headspace Analysis

O.Oppm O-3.5'bgs

	CH2MHILL
=	CHZIVIHILL

TEST PIT NUMBER

SHEET 1 OF 1

ROJECT:	1215	LOCATION: Camp CONTRACTOR: SAEDACC	Johnson	n LOGGER: EMUST
LEVATION	The second secon	CONTRACTOR: SAEDACC ED: Dete 3109 APPROX. DIMENS: Length: 8 F+ ISOIL DESCRIPTION	0	215 50000000 3140106
VATER LEV	N EQUIPMENT USI	APPROX. DIMENS: Length: 8 F+	Width:	DATE EXCAVATED: 7/28/09 2 C+ Max. Depth: 3 f+
		SOIL DESCRIPTION	Tridui.	COMMENTS
SURFACE (FT)	SAMPLE	SOIL NAME, USCS GROUP SYMBOL, COLOR,	DIFFICULTY	Y IN EXCAVATION, RUNNING GRAVEL
E S	- L	MOISTURE CONTENT, RELATIVE DENSITY,		I, COLLAPSE OF WALLS, SAND HEAVE,
HF BF	AY PER	OR CONSISTENCY, SOIL STRUCTURE,		COUNTERED, WATER SEEPAGE,
SU	INTERVAL NUMBER AND TYPE	MINERALOGY.	OVM (ppm):	NAL CONTACTS, TESTS, INSTRUMENTS. Headspace Analysis
	= 24	0-05 70011-04		
-	1	organic rich Sult + Sard, loss	- 4.1	0-1
1_				
		moist	00	1-2
-	1	05-7-814 Scallen	-	
2_	1	05-2 - Suty Sand (sm) -	-	
_		Tan to sand, some sut.	0.0	2-3
3				
"		lucse, moist. large roots	7	
-	1	2-3 - Sand (SP) -	H	1
4_	- 1		\Box	
	1	Lt Tan ty sand, loose,	/ 1	
-	1	moist 3 mill, 10034,	/ -	l .
5_	- 1	1.10124	_	1
_	1	11 24	_	
	N .	Terminated @ 3'bgs		I
6_	1	3	-	1
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0	CH2MHILL
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377812

TEST PIT NUMBER

TP03

SHEET 10

TEST PIT LOG

PROJECT	: 1	R15					LOCA	ATION	1: (Car	10.	Joh	ınsī	n					LOG	GER	: E	Mu	1st	RD	u
ELEVATIO	N:										-													,	
EXCAVATI	ON EC	UIPME	NT USE) :	I	Deev	re	3	109							DATE	EXC	AVAT	ED:	71	28/0	9			
WATER LE	VEL:				APPE	OX. D	DIMEN	IS:	Leng	th:	8	3 4+			Width	:	24	t		• ,			: 3	H	
			SC	IL DES	CRIPT	ION												CO	MMEN	ITS					
SOIL NAM	E, USC	S GROUP	SYMBO	L, COL	OR, MO	DISTU	RE CO	NTENT	T, REL	ATIVE		DIFFI	CULTY	IN EX	CAVAT	TION, F	RUNNII	NG GF	AVEL	COND	ITION,	COLL	APSE C	F WA	LLS,
DENSITY, C	OR CON	SISTENC	CY, SOIL	STRUC	TURE,	MINE	RALOG	ŝΥ					HEAV S, INST			NCOU	NTERE	D, WA	ATER S	SEEPA	GE, GF	IADAT	IONAL	CONT	ACTS
										Te	est Pit	Dimen	tions (ft)											
	Seat	Ş.																						B	Julian
Scale (ft)		2		1	6		8		10		12		14		16		18		20		22		24		26
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14	1 I																				ı 1				

OVM (ppm): Headspace Analysis

OVM (ppm):

Breathing Zone Analysis



TEST PIT NUMBER

IRIS - TPO4 SHEET 1 OF 1

PROJEC	T: /	1R15	LOCATION: Camp J	hason	LOGGER: E Must	
ELEVAT	the state of the s				ner manuer abole	
-		JIPMENT USE	A Company of the Comp	Milelbox	DATE EXCAVATED: 7/26/09	_
	LEVEL:		APPROX. DIMENS: Length: 9 ft	wigin.	COMMENTS	_
DEPTH BELOW SURFACE (FT)	S	AMPLE	SOIL NAME, USCS GROUP SYMBOL, COLOR,	DIECIOLILTY	IN EXCAVATION, RUNNING GRAVEL	_
ELC E			MOISTURE CONTENT, RELATIVE DENSITY,		COLLAPSE OF WALLS, SAND HEAVE.	
A H	AL.	E 2	OR CONSISTENCY, SOIL STRUCTURE,		COUNTERED, WATER SEEPAGE,	
TH.	NTERVAL	器 左	MINERALOGY.		IAL CONTACTS, TESTS, INSTRUMENTS.	
E S	Ë	NUMBER AND TYPE	MINERALOGI,	OVM (ppm):	Headspace Analysis	٦
_			0-05- Topso, 145 Dt grey (sm)-			_
-			0 03 topsoil & or again	0.0	0-1	
1_			Ay Sand & selt, loose moist _			
			1			
-			6.5-3 - Sulty Sand (Sm)	0.0	1-2 (5) 1-2	4
2_						_
			Tan for sand + sut, trace -			
-			Clay, small coarse sand	1	1	
3				0.0	2-3	-
			Size shell fragments, med -	0.0		
_			dense Good Con mother crange	1	Small piece of	
4_			9		red covamic	_
			3-4 - Sutty Sand (Sm) -			
			- John Jana (3.1.)	0.0	3-4- metal pipe,	
5_	-		As above - orange -	0.0		=
					Ceramic + gliss	
			4-5- Sand (SP) - White -			
6_	1		11 2 Jana (31) - White	0.0	4-5	-
		1	11+ to 1 co 1 1 1	0.0	4 5	
7			Lt tan ty sand, loss, mit			
7_						-
_			Terminated @ 5 bgs			- 5
8_		1	termination C 2003			
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•	CH2MHILL
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TEST PIT NUMBER

377812

1R15-TP04

SHEET 10

TEST PIT LOG

PROJECT:					LOCATI	ON: (2	imp J	ohn	Son					LOG	GER	: E	Mus	st/R	D4	
ELEVATION : EXCAVATION E	OLUDMEN	TUSED	. 1		21/						DAT	EEYC	ΔΙΛΑΤΕ	D: -	7/2	010	9			
WATER LEVEL :		1 USED		BOX	310 DIMENS:	Length	1: 9 %	*		V	Vidth: 2	L LAU	AVATE	υ.	110	Max	Depth	. 5	H	
		SOL	L DESCRIP		JIIVILI TO.	Longa	/ 1	†			vidur. Z	71		MMEN.		man	Берин	. 01	- (
SOIL NAME, USO DENSITY, OR CO		SYMBOL	, COLOR, N	OISTU		ENT, RELA	TIVE	SAND	HEAVE		AVATION, RIS ENCOU		NG GRA	AVEL C	COND					
							Test Pit	Dimen	tions (f	ft)										
Qualit	da .	- 12 - 12		2	5 12	(B) (B)	25	S :	S 70	7.5	128	3		.85	10			2 8	- 1	Ribeth
Scale (ft)	2	4	9	6	8	10	12		14		16	18		20		22		24		26
		TOP	Soil /SN	4																
2_																				
		Sm																		
4		Sm 4	debris	/																
		SP		1										\neg						
6						\dashv					\neg			\neg						
8										\neg										
10																				
12																				
14																				

OVM (ppm):

Breathing Zone Analysis

OVM (ppm): Headspace Analysis

0.0 -0.5' bgs

0.0 ppm



TEST PIT NUMBER

SHEET 1 OF 1

PROJEC	et: ,	IR15	LOCATION: Camp Jo	hnson	LOGGER: E MUS	it
ELEVAT		UDMENTION	CONTRACTOR: SAEDACCO		DATE EVOLUTED DISULO	
	LEVEL :	UIPMENT USE	DPPROX. DIMENS: Length: 9 4	Width:	DATE EXCAVATED: 7/28/09 2 ft Max. Depth: 7 ft	
		Andrews V	SOIL DESCRIPTION	Widin.	COMMENTS	_
DEPTH BELOW SURFACE (FT)	3	SAMPLE	SOIL NAME, USCS GROUP SYMBOL, COLOR,	DIFFICULTY	IN EXCAVATION, RUNNING GRAVEL	
GE (ш	MOISTURE CONTENT, RELATIVE DENSITY,	CONDITION,	COLLAPSE OF WALLS, SAND HEAVE,	
H X	× ×	H -	OR CONSISTENCY, SOIL STRUCTURE,	DEBRIS ENC	OUNTERED, WATER SEEPAGE,	
SUF	NTERVAL	NUMBER AND TYPE	MINERALOGY.		AL CONTACTS, TESTS, INSTRUMENTS.	
	Z	Σ₹		OVM (ppm):	Headspace Analysis	
			0-1 - Tupsoil + Sulty Sand (Sm)	0.0	0-1	
1_		1	Dk grey ty may sand selt -			_
-			organic rich, most, loose -	0.0	1-2	5
2		1				
	ľ		1-43-Silty sand (sm) -	1	1.3	
72	1	1		0-0	2-3	
3_			Tan + orange fy sand + sult_			-
			I - O -	22 24		
-			losse, maist	7.2	3-9	
4_		1	25 0 1 1/2 ((1)			
2		1	3-5 - Sandy Clay (CL)			
-		1		4.3	5-9	
5			Gray lorange by Sand + -	4.5	3 4	_
-		1	clay, from, most			
6			cay, prm, mis.	1		
-			4-9- Sand (SP) -	1		
2		1	Sand (SI)	1		
7_			white - Lt Tan for sand,	_		-
722		1	/loss, moist	1		
8		1		1		35
_			T. 1.1071.			-
9_	1		Terminated @ 7/bgs			
×		1		1		
-		1		-		
10_		1	1			
-	1	1	-	1		
11_		1	_	-		-
40		1				
12	1	1	-	1		-
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0	CH2MHILL
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317812

TEST PIT NUMBER

TP05

SHEET 10

TEST PIT LOG

PROJECT		IR I	5				LOCA	TION	: Ca	mp -	chne	Bn			L	OGGE	R: E1	Mus	x/ /=	2DU
ELEVATIO		OL HOMAS	NTLIO	D .	D- /		210							TE EVO	AVATED	-1	28/09		-	
EXCAVAT	-		INT USE	D:	LPC	Ve	310 DIMEN	2	Longth	9	· f	-	Width:	2	PH	- //	Max. D	Jonth:	-	1.1
WATER LE	VEL:			011 05		A PERSONAL PROPERTY.	JIMEN	5;	Length:		+	_	widin:	×		IENTS		eptii.	1-	PT
0011 11414	E 1100	00000		OIL DES			75.001	TEN I	DEL ATE	<i>y</i> = 1	DIFFICI	II TV IA	EXCAVATION	N. DUNNI				COLLAI	DOE OF	MALLO
SOIL NAM DENSITY, C									, HELATI		SAND H	EAVE,	DEBRIS ENC UMENTS.	3						
										Test Pit I	Dimenti	ons (ft)								
	8000	h i		4							,	1	1 1	1		1	1 1		1	Aleger 1
Scale (ft)		2		4	6		8		10	12		14	16	18		20	22	\perp	24	26
	1		To	P501	1/5m	1		/												
2			51	n			1													
4			CI-							\neg										
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6	 	1	95		1		\vdash			+	\neg	-		1		+	+	\neg	\neg	\neg
0-		1	× /	4	1		\vdash	_	\vdash	+	\rightarrow	+		+-	\vdash	+	+	\dashv	+	_
_	-	\rightarrow	4	+	-	-	\vdash		\vdash	\rightarrow	\rightarrow	-		_		+	+	-	+	
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10									\vdash			_				_	\perp	\dashv	\rightarrow	
12																				
14																	T			

OVM (ppm): Headspace Analysis

OVM (ppm):

Breathing Zone Analysis



TEST PIT NUMBER

1R15-TP06

SHEET 1 OF 1

PROJECT	: 18	215	LOCATION: Camp Johnson LOGGER: E	must
ELEVATIO			CONTRACTOR: SAEDACCO	
		IPMENT USE		8 09
WATER L	EVEL:		The state of the s	14
₹F	SA	MPLE	SOIL DESCRIPTION COMMENTS	
DEPTH BELOW SURFACE (FT)			SOIL NAME, USCS GROUP SYMBOL, COLOR, DIFFICULTY IN EXCAVATION, RUNNING GRA	
H B	A.	PE G	MOISTURE CONTENT, RELATIVE DENSITY, CONDITION, COLLAPSE OF WALLS, SAND HE OR CONSISTENCY, SOIL STRUCTURE, DEBRIS ENCOUNTERED, WATER SEEPAGE,	AVE,
H H	NTERVAL	# C	MINERALOGY. GRADATIONAL CONTACTS, TESTS, INSTRUM	ENTS.
S	Z	NUMBER AND TYPE	OVM (ppm): Headspace Analysis	
			Onl - Trosail Mulde Shee 3111 Onl - Hables	
-			0-1 - Topsoil, Mulch, Subtysand 31.4 0-1 Highly or	Janic
1_			Dit grey by sand + sect, - 6.1 1-2	O. Oppin
_			organic rich, mulch, mist	
2_			1-2 Sety Sand(sm) - 0.0 2-3	_
4			July Sandisin) -	
3			Orangish Tan for sand, some - 00 211	
			0.0 3.4	
-			Selt, losse, moist -	
4			2-2 50 /(2) 7	-
			2-3 Sand (SP) - Tan 0.0 4-5	
-			formy sand lowse, moist	
5				-
_			3.5 - Sandy clay KLS -0.0 5-6	
6				
°-†			Gray lorange / Tan As sand	
-			A COLLEGE OF THE STATE OF THE S	9
7_			+ Glay, firm, dry-noist.	
			5-6- Sand (SP)	
-				
8			White - LT Tan for sound	7-
_			last, mist	
9			1 10031, 176151	
9_				· ·
-			Terminated @ 6 bgs -	
10			1(11)1111111111111111111111111111111111	
			1 7 1	
-			1	9
11_				-
150				
12_				-
-				-
13				
13_				-
-				
14				

0	H2MHILL
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TEST PIT NUMBER

377812

TP06

SHEET 10

TEST PIT LOG

PROJECT: 1RIS	LOCATION: Cam	p Johnson	LOGGE	R: Emust
ELEVATION:		·		
EXCAVATION EQUIPMENT USED :	Deere 310g			28/09
WATER LEVEL :	APPROX. DIMENS: Length:	9H Width:	2.14	Max. Depth: (a ft
SOIL D	ESCRIPTION	0	COMMENTS	
SOIL NAME, USCS GROUP SYMBOL, CO	DLOR, MOISTURE CONTENT, RELATIVE	DIFFICULTY IN EXCAVATION	ON, RUNNING GRAVEL CON	NDITION, COLLAPSE OF WALLS,
DENSITY, OR CONSISTENCY, SOIL STRU	JCTURE, MINERALOGY	SAND HEAVE, DEBRIS EN TESTS, INSTRUMENTS.	COUNTERED, WATER SEEF	PAGE, GRADATIONAL CONTACTS
	Tes	t Pit Dimentions (ft)		
- Oouth-		W 12 12 N 12		-North
Scale (ft) 2 4	6 8 10	12 14 16	18 20	22 24 26
Topsoil, mul	1ch, 5m			
2 \ Sm				
SP				
1				
4_	++4+++			
6_ SP				
8_				
10				
12				
14				

OVM (ppm): Headspace Analysis

OVM (ppm):

Breathing Zone Analysis



TEST PIT NUMBER

IRIS-TPO7 SHEET 1 OF 1

DDO IFO	-	ID IC	LOCATION Co	labor		00FD - 1-101 - 15 ±
PROJEC		IR15	LOCATION: CAMP CONTRACTOR: SAEDAC	Johnso	N LO	GGER: Emust
ELEVATI	The state of the s	PMENT USED		(0	DATE EXCAVAT	ED: 7/28/09
WATER		I MICIAI OSCI	APPROX. DIMENS: Length: 1/2 ft	Width:	THE	Depth: 6 f f
		N. Cophiese	SOIL DESCRIPTION	Trideri.	200	MENTS
DEPTH BELOW SURFACE (FT)	SA	MPLE	SOIL NAME, USCS GROUP SYMBOL, COLOR,	DIFFICULTY	Y IN EXCAVATION, F	UNNING GRAVEL
SE (- 1	TOF	MOISTURE CONTENT, RELATIVE DENSITY,		, COLLAPSE OF WA	
FA	X	E 로	OR CONSISTENCY, SOIL STRUCTURE,	DEBRIS EN	COUNTERED, WATE	R SEEPAGE,
를 를 등	NTERVAL	NUMBER AND TYPE	MINERALOGY.	GRADATIO	NAL CONTACTS, TE	STS, INSTRUMENTS.
-0.55%	Z	ž ž		OVM (ppm):	Headspace Ar	alysis
			0-0.5 - Topsoil - Dkgrey			
_			100001	- 0.0	0-1	
1_			organic rich sult a sand	_	1	-
_			moist			
0			The state of the s	0.0	1-2	
2			0.5-3 - Suty Sand (SM)	-		7-
_				-0.0	z-3	5
3_			Ovangish tan ty sand,			
			1:14 out his morest		2 11	-
-			little sut, loose, mrist	0.0	3-4	9.5
4			255 0 1 11 1.1	_		12
		8	3-5,5- Sandy Clayles	0.0	4-5	
-				-	. 3	29
5			day, firm, dy-moist	0.6		_
			Man Com division in	0.0	5-6	
-			day, non , any moist	-		33
6			2 (1/2)		_	-
			5.5-6- Sand (SP) -	Λ		
				Π	1	
7_		ľ	Orange Tan for sond,	\vdash	1	-
_			1000	_	1	
8			lose, most.		1	
0_			1 1241,	_	1	_
-				-		9
9			Terminated e 6 bgs			
\$4600 m			3		1	
-				-		9
10				_		-
		(1	
200				-	1	24
11_				-	1	
100				_		56
10				1		
12				-		-
_				_	1	
					1	
13_				_	1	· ·
_				_	1	
14					1	
14				-		-

0	CH2MHILL
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TEST PIT NUMBER

TPOT

SHEET 10

TEST PIT LOG

		\ .		_
PROJECT: IRIS	LOCATION: (Jan	mp Johnson	LOGGEF	R: EM
ELEVATION:				
EXCAVATION EQUIPMENT USED :	Deere 3109		TE EXCAVATED: 7/	28 / 09 Max. Depth: 6 4+
WATER LEVEL :	APPROX. DIMENS: Length:	10 1+ Width:	2 ft	Max. Depth: 6 4+
SOIL DES	SCRIPTION		COMMENTS	
SOIL NAME, USCS GROUP SYMBOL, COL				DITION, COLLAPSE OF WALLS,
DENSITY, OR CONSISTENCY, SOIL STRUC	CTURE, MINERALOGY	SAND HEAVE, DEBRIS ENCO TESTS, INSTRUMENTS.	DUNTERED, WATER SEEP	AGE, GRADATIONAL CONTACTS
	Test	t Pit Dimentions (ft)		
South-	100 at 100 at 100 100 100			North
Scale (ft) 2 4	6 8 10	12 14 16	18 20	22 24 26
TOPS	551/			
2_ \ Sm				
4_ 04_				
6_				
8				
10				

OVM (ppm): Headspace Analysis

OVM (ppm):

Breathing Zone Analysis

	CH2MHILL
-	

TEST PIT NUMBER

IRIS TPOB

SHEET 1 OF 1

ROJECT:	IR15	LOCATION: Cam	o loboseo	LOGGER	Emust
LEVATION:	110.5	LOCATION: Cam.	0		
	QUIPMENT USE	D: Deere 310 a		DATE EXCAVATED:	7 28 09
VATER LEVEL :	Ę.		Width:	A A Max. Depth:	5.5 H
3 E	SAMPLE	SOIL DESCRIPTION		COMMENTS	•
SURFACE (FT) STERVAL		SOIL NAME, USCS GROUP SYMBOL, COLOR,		IN EXCAVATION, RUNNING	
A ACE	~ H	MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE,		, COLLAPSE OF WALLS, SA	
SURFAC SURFAC	필스			COUNTERED, WATER SEEP	
N S E	NUMBER AND TYPE	MINERALOGY.	OVM (ppm):	IAL CONTACTS, TESTS, INS Headspace Analysis	STRUMENTS.
		A-CE Taril No	O vini (ppini):	Treadspace Principals	-
-	1	0-0.5 - Topsoil - Dk quen	-0.0	12-1	
1	1	organic Silt & Sand, loose,	_	P	
	1	dy -most	0.0	1-2	
-	1	A ANTONIA	- 0.0	1 2	
2_	1	0.5-1 - Sand (SP)	- 4.5	2-3	
	1			1-3	
. 7		Tan to sand, lower, min	st	- 11	
3_	1	573 - 577	- 0.0	3-4	
_	1	1-3 - sardy Clay(EL)	_		
,]	1		20	4-5	
*-		Dry lorange to sand +	- 2.9	7 5	
-		ordina or in the	-		
5_	1	clay, fin, mrist	- 1		
3-		3,	_		
+		3.4 - 6.11 Sa. (1)	1	+	
6		3-4 - Sulty Sand (sm)	4		
		Mary lot of soil	11		
-		arangelton to sand +	/-1		
7_		Self, loose, moist	\vdash		
	1	The control of the co	/		
		(4-5.5- Sand (SP)	1-1		
8_	1	Jana (SF)	<i>[</i> –]	li .	
_	1	White As sand, 1000	/ _		
9_		13 30001,1200			
3-		\ Moist	_		
-			-		
10_					
		Terminated 05.5 by	2	I	
-			-	I	
11_			_	1	
				1	
			1		
12_			_	l	
_					
40				1	
13_	1		-		
_	1				
14					
14 —			-		

•	CH2MHILL
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OVM (ppm): Headspace Analysis

PROJECT	NUMBER
	377812

OVM (ppm):

Breathing Zone Analysis

TEST PIT NUMBER

SHEET 10

PRO	JECT :	:	ľ	RIS	5				LOCA	ATION	: (an	P J	John	150	n_					LOG	GER	: E	me	15t		
ELEV	/ATIOI	N :																									
EXC/	AVATION	ON E	QUIPN	IENT	USED	:	De	eve	7	310	9								EXC	-	ED:	71	28/				
WAT	ER LE	VEL:					APP	ROX.	DIMEN	IS:	Lengt	th:	(3 1	+		Width	:	20	+			Max.	Depth:	6	.5 A	4
					SO	L DES	CRIPT	ПОП						0					-0-	CO	MMEN	ITS					
SOIL	NAME	E, USC	SGR	OUP SY	MBOL	, COL	OR, M	OISTU	RE CO	NTENT	, REL	ATIVE		DIFFI	CULTY	IN EX	CAVAT	TON, F	RUNNIN	IG GF	AVEL	COND	ITION,	COLLA	PSE C	F WA	LLS,
DENS	SITY, O	R CON	NSISTE	NCY,	SOIL S	TRUC	TURE,	MINE	RALOG	Ϋ́				120-27 30013000	HEAV S, INST			NCOU	NTERE	D, WA	TER S	SEEPA	GE, GF	RADATI	ONAL	CONT	ACTS,
												Te	est Pit	Dimen	tions (ft)											
		Sout	h		3		(9)		20 7	9			2 12	- ,					16	0				1 12		+	lorth
Scal	e (ft)		2		4		6		8		10		12		14		16		18		20		22		24		26
		Λ		To	PS	PIL	-																				
2					6				7																		
					0																						
4		1		3	m	_																					
			1	P																							
			1					-	_					_				_					\vdash	_	-	\neg	
6	_				_	⊢		-	-				-		_			_	-	_	_		\vdash		\rightarrow	-	-
	_	_	-	_	_	<u> </u>	-	-	-	_			-						-	_				-	\rightarrow	-	-
8								_																	_		
10																											
12																											
W-7-																									\neg		
14																											



PROJECT NUMBER 377も12 TEST PIT NUMBER

SHEET 1 OF 1

PROJEC		5 ı	OCATION: Camp J	ohn Son	LOGGER: EMUS	+
A Company of the Comp	TION EQUIPMENT	USED: Deere 310 a		DAT	E EXCAVATED: 7/29/09	
WATER	LEVEL :	APPROX. DIMENS: L	ength: 7 ft	Width: 2	Max. Depth: 6 ft	
DEPTH BELOW SURFACE (FT)	INTERVAL NUMBER	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYM MOISTURE CONTENT, RELATIV. OR CONSISTENCY, SOIL STRUCT MINERALOGY.	E DENSITY,	CONDITION, COLI DEBRIS ENCOUN GRADATIONAL CO	COMMENTS XCAVATION, RUNNING GRAVEL LAPSE OF WALLS, SAND HEAVE, ITERED, WATER SEEPAGE, ONTACTS, TESTS, INSTRUMENTS. Headspace Analysis	_
- 1 2 3 4 5 6		O-05 - Topsoi Organic rich: loose, duy-mon 05 - Sille Orongish Tan Some sult,	sut + sand, _ ist _ y Sand (sm) = fy Sand, _ luose, must =	0.0 0 0.0 1 0.0 2 0.0 2	of to the left into	
7		Test pit to	erminated -		a mound w/ batteries on to p Call it TPOIA	-
14_			-			_

	CH2MHILL
-	CHZIVIHILL

377812

TEST PIT NUMBER

TPOI

SHEET 10

TEST PIT LOG

LOCATION: Camp Johnson 1R85 LOGGER: Emust PROJECT: **ELEVATION:** 7/29/09 DATE EXCAVATED: **EXCAVATION EQUIPMENT USED:** 3109 Deene APPROX. DIMENS: Width: Max. Depth: 6 At WATER LEVEL: Length: SOIL DESCRIPTION COMMENTS SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DIFFICULTY IN EXCAVATION, RUNNING GRAVEL CONDITION, COLLAPSE OF WALLS, DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY SAND HEAVE, DEBRIS ENCOUNTERED, WATER SEEPAGE, GRADATIONAL CONTACTS. TESTS, INSTRUMENTS. Test Pit Dimentions (ft) South Scale (ft) 12 18 20 14 16 26 1005011 2_ Sin SP 6 8 10 12

OVM (ppm): Headspace Analysis

OVM (ppm):

Breathing Zone Analysis



TPO1.4

SHEET 1 OF 1

TEST PIT LOG

ROJEC		1285	LOCATION CONTRACTOR: SF	Camp J	lohnso	1	LOGGER:	Emust
		IPMENT USE	Deere 3109	TEUACCO		DATE EX	CAVATED: 7	129/09
or the second	LEVEL:		APPROX. DIMENS: Length:	13 ft	Width: 5	f+	Max. Depth:	3 ft
> <	6/	AMPLE	SOIL DESCRIPTION				COMMENTS	
SURFACE (FT)	NTERVAL	NUMBER AND TYPE	SOIL NAME, USCS GROUP SYMBOL, COLO MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.		CONDITION, DEBRIS ENC	COLLAPSE COUNTERED AL CONTAC	TION, RUNNING OF WALLS, SAN D, WATER SEEPA CTS, TESTS, INST Space Analysis	D HEAVE, GE,
_	_=_	24	A-15 TALL P	11				
1 2 3 4 5 6 7 8 9 10 11 12	San (E)		0-15- Topsoil, B debris, - Dk grey Sand + silt, ba broken glass. loos 1.5-3 - Silty S Tan fg Sand, som loose, moist Termineted P 3'bap	tains se, maist	0.0	0-3+B	atteries	\$ ass
-				7				
13_				-				
_				2				
14			I					
	I			_		ı		



OVM (ppm): Headspace Analysis

PROJECT	NUMBER
	7

TEST PIT NUMBER

377812 TPO IA

SHEET 10

TEST PIT LOG

Camp Johnson 1R85 LOGGER: EMUST PROJECT: LOCATION: **ELEVATION:** 3105 NS: Length: Deere DATE EXCAVATED: 7/29/09 **EXCAVATION EQUIPMENT USED:** 13f+ APPROX. DIMENS: 5++ Max. Depth: 3C+ WATER LEVEL: Width: SOIL DESCRIPTION COMMENTS SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DIFFICULTY IN EXCAVATION, RUNNING GRAVEL CONDITION, COLLAPSE OF WALLS, DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY SAND HEAVE, DEBRIS ENCOUNTERED, WATER SEEPAGE, GRADATIONAL CONTACTS, TESTS, INSTRUMENTS. Test Pit Dimentions (ft) South Nanth Scale (ft) 16 18 20 26 +der! 2 Sm 6 8 10 12

Breathing Zone Analysis

OVM (ppm):

ELEVATION :
EXCAVATION EQUIPMENT USED :
WATER LEVEL : PROJECT : CH2MHILL 1R85 CONTRACTOR: CONTRA PROJECT NUMBER 377812 OR: SHEDACLO TEST PIT LOG TEST PIT NUMBER NOGUMOC Width: 1907 DATE EXCAVATED:

O

Max. Depth: SHEET LOGGER: EMUST _

유

SAMPLE NUMBER AND TYPE 0.5-2 MINERALOGY. MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, SOIL NAME, USCS GROUP SYMBOL, COLOR, Topas 1 + Bathairs DK they exteriors 2 Sur mors 4 رای Sand(SA) 200 Sando Sile 1000 0.0 DIFFICULTY IN EXCAVATION, FUNNING GRAVEL CONDITION, COLLAPSE OF WALLS, SAND HEAVE, DEBRIS ENCOUNTERED, WATER SEEPAGE, GRADATIONAL CONTACTS, TESTS, INSTRUMENTS 0.0 DVM (ppm): 012 0-2 at surpre log therico 7/24/00

DEPTH BELOW SURFACE (FT)

INTERVAL

lerminated

0

2'bap

13_

=

10

12

	CH2MHILL
-	

PRO	JECT	NIII	MRF
	0201	140	

TEST PIT NUMBER

377812

1885-TROZ

SHEET 10

TEST PIT LOG

PROJECT	: I	R85				LOCAT	ION: (amp	Joh	nsov				LO	GGER	1: E	Mus	t	
ELEVATIO								~ 1											
EXCAVAT	ION EQUIP	MENT U	ISED:	D	eers	2 310 DIMENS	09						E EXCA	VATED:	71	29/0	9		
WATER LE	EVEL:			APPE	ROX. D	DIMENS	: Lengti	h:	34		W	idth:	211		- 1	Max. D	epth:	24	t
SOIL DESCRIPTION								1,				4	COMME	NTS					
SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE							DIFF	ICULTY	IN EXC	VATION	RUNNING	G GRAVEL	CONE	DITION, O	COLLAP	SE OF	NALLS,		
DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY								SAND HEAVE, DEBRIS ENCOUNTERED, WATER SEEPAGE, GRADATIONAL CONTACTS, TESTS, INSTRUMENTS.											
								Test P	it Dime	ntions (ft)								
	South			1						7 1								-	North
Scale (ft)	700501		4	6		8	10	1	2	14	_	16	18	20		22	_	24	26
	SP	1	_	+	Н	\vdash	+	_	+	\vdash	\dashv	+	+	-	-	+	+	+	+
2	1		\dashv	+	Н				+	\vdash		_	+	_	1	+	+	+	+
4																			
6	\vdash	+	_	+		-	-		+	\vdash	_	_	+	_	-	-	-	-	_
8									\pm									#	\perp
10																		\pm	
		\vdash		-			-		+	\vdash		-	+		_	\vdash	_		
12	-	\vdash	_	+		-	+	-	+	\vdash	-		+-+	-	-	+	-	+	+
14		+					+		+	\vdash	_	+			1	\vdash	-		_
14 OVM (ppm):	Headspace	Analysis		OVM	(ppm):	Brea	athing Zone	Analysis											

75000				
	CH	2N	IHI	LL
-				

TEST PIT NUMBER

TP03

SHEET 1 OF 1

TEST PIT LOG

				- 000
PROJECT		- 1	CONTRACTOR: SAEDACO	Johnson LOGGER: EM
ELEVATION		DMENT LIGH	CONTRACTOR: SAEDACO	DATE EXCAVATED: 7/29/09
WATER L		PMENT USE	APPROX. DIMENS: Length: 6 Lt	Width: 7_ M Max. Depth: 2 At
		MPLE	SOIL DESCRIPTION	COMMENTS
DEPTH BELOW SURFACE (FT)	NTERVAL	NUMBER AND TYPE	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	DIFFICULTY IN EXCAVATION, RUNNING GRAVEL CONDITION, COLLAPSE OF WALLS, SAND HEAVE, DEBRIS ENCOUNTERED, WATER SEEPAGE, GRADATIONAL CONTACTS, TESTS, INSTRUMENTS.
S E	Ĭ.	A P D	MINERALOGY.	OVM (ppm): Headspace Analysis
- 1 2 3 4 5 6 7 8 9 10 11 12 13 1		UN AN	0-0.5 - Topsoil, few Datteries. Drawey & sad- 4 silt, losse, moist, few Datteries at surface 0.5 - 2 - Sand (SP) Ten & saml, losse, maist. Terminated @ 2'bgp.	- 0.0 0-1 for botter es -
14			-	

9-2		
	CH2MHI	LL
The same of		

377812

TEST PIT NUMBER

1R85-TP03

SHEET 10

TEST PIT LOG

																								201625	
PROJE	and the same and the	VR8	5			2101-113	LOCA	ATION	l: (am	67	ohr	SOV						LOG	GER	: E	Mie	st		
ELEVAT EXCAV		EQUIPA	/ENT	JSED		Dage	00 2	10 a								DATE	EXC	AVATI	ED: *	7/2	9/00	7			
									101	*			Width		214			11-	Max.	Depth	: 24	H			
SOIL DESCRIPTION														7		MMEN									
SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE								DIFFICULTY IN EXCAVATION, RUNNING GRAVEL CONDITION, COLLAPSE OF WALLS,																	
DENSIT	DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY								SAND HEAVE, DEBRIS ENCOUNTERED, WATER SEEPAGE, GRADATIONAL CONTACTS, TESTS, INSTRUMENTS.																
										Tes	t Pit D	iment	ions (ft)											
I	90	outh	F 1		Ť	4	1	ſ	r r	- 1	1	1					4	8	77	P 1	F 1		1 1	1	Vorth
Scale ((ft)	2		4		6	8		10		12		14		16		18		20		22		24		26
	1	Toos	ail Ru	Datter	15																				
2_		T.	\$2																						
				2000																					
4_																									
6																									
													e I												
8																									
10																									
12																									
14																									

OVM (ppm): Headspace Analysis

OVM (ppm):

Breathing Zone Analysis

	CH2MHILL
440	

TP03A

SHEET 1 OF 1

TEST PIT LOG

DDC ICC	.	IRB5	LOCATION: Camo Johnson LOGGER: EMUS	<u>-</u> +-
PROJEC' ELEVATI		11100	LOCATION: Camp Johnson LOGGER: EMUS CONTRACTOR: SAEDACO	21
		IPMENT USE	D: DATE EXCAVATED:	
WATER	and the same of th	II MEITI OOL	APPROX. DIMENS: Length: b bt Width: 2 bt Max. Depth: 2.5	14
	-	WHENCEN	SOIL DESCRIPTION COMMENTS	7
& E	SA	AMPLE	SOIL NAME, USCS GROUP SYMBOL, COLOR, DIFFICULTY IN EXCAVATION, RUNNING GRAVEL	
SE SE	Sir	tu	MOISTURE CONTENT, RELATIVE DENSITY, CONDITION, COLLAPSE OF WALLS, SAND HEAVE,	
H A	₹ A	E F	OR CONSISTENCY, SOIL STRUCTURE, DEBRIS ENCOUNTERED, WATER SEEPAGE,	
DEPTH BELOW SURFACE (FT)	NTERVAL	NUMBER AND TYPE	MINERALOGY. GRADATIONAL CONTACTS, TESTS, INSTRUMENTS.	
See See 1	Z	ž₹	OVM (ppm); Headspace Analysis	
1_ - 2_			1005- Topsil, batteries - 0.0 0-13 ct @ ont surface. Dk gray - 0.0 1-2 Surface.	-
3			Tan to sad, loose- most. Terminated e 2.5 bge	
8_		u		=
9_				3
285				
, 2			1 1	-
10				<u> </u>
-				-
11_		1		
		1		=
72				24
12				_
7			1 1	=
13_				-
				_
14_				=

	CH2MHILL
Same III	

TEST PIT NUMBER

377812

IR85-TP034

SHEET 10

TEST PIT LOG

PROJECT: 185	LOCATION	: Camp Ja	hnson			LOGGER	: EM	ust /R	DU
ELEVATION:		, , , , , , , , , , , , , , , , , , ,	***************************************					CONTRACTOR OF THE PROPERTY OF	
EXCAVATION EQUIPMENT USED :	Deeve 310	9			EXCAVATE	D:			
WATER LEVEL :	APPROX. DIMENS:	Length: 6	lt	Width:	214		Max. Depth:	: 2.5.	H
SOIL DE	ESCRIPTION		,		, cor	MENTS			U
SOIL NAME, USCS GROUP SYMBOL, CO	LOR, MOISTURE CONTENT,	RELATIVE D	IFFICULTY IN E	EXCAVATION, F	RUNNING GRA	VEL COND	ITION, COLLA	APSE OF W	ALLS,
DENSITY, OR CONSISTENCY, SOIL STRU	ICTURE, MINERALOGY	2.0	AND HEAVE, DI ESTS, INSTRUM		NTERED, WA	TER SEEPA	GE, GRADAT	IONAL CON	TACTS
		Test Pit Di	mentions (ft)						
South							20 20 2		North
Scale (ft) 2 4	6 8	10 12	14	16	18	20	22	24	26
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OVM (ppm): Headspace Analysis

OVM (ppm):

Breathing Zone Analysis

1200000	
	CH2IVIHILL
- Charles	

TPO4

SHEET 1 OF 1

TEST PIT LOG

PROJEC	Τ:	IR 85	LOCA	TION: (amp SAEDACCO	Johnso	n LOGO	GER: EMUST
ELEVATION			CONTRACTOR:	SAEDACCO		*	-1-21
		PMENT USE				ATE EXCAVATED	the state of the s
WATER L	EVEL:		APPROX. DIMENS: Length SOIL DESCRIPTION	1: (0	Width: S	Max. D	
ĕ£	SA	MPLE	SOIL NAME, USCS GROUP SYMBOL, O	COLOR	DIEEICH TV IN	EXCAVATION, RUI	Company of the same of the sam
DEPTH BELOW SURFACE (FT)		ne.	MOISTURE CONTENT, RELATIVE DEN	76		OLLAPSE OF WALL	
FAC	.VAL	H H	OR CONSISTENCY, SOIL STRUCTURE	September 200 for a		UNTERED, WATER	
SUF	NTERVAL	NUMBER AND TYPE	MINERALOGY.	-		CONTACTS, TEST	
	Z	Z 4			OVM (ppm):	Headspace Analy	/sis
_			0-050-0.25 - To	pso1 +	0.0	1 Ba Hery	on surface -
1			1 battery, Dk yu moist, Sand + Su	y lovy	0)-1	V
			1 (0 1 = 8	14			3
			mast, sona su	· †			-
2_			0.25-1.5 - San	d (SP) f			-
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(67.8							
			Maist.	/ 1			-
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	CH2MHILL
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PRO.	IFCT	NIIN	/IRF
FINO		IAOI	

TEST PIT NUMBER

377812

1885-TPQ4

SHEET 10

TEST PIT LOG

PROJ	IECT :	0	1	R85	5				LOCA	ATION	: (am	0 7	oh	150V	1					LOG	GER	: E	mi	st	RIX	٨
ELEV	OITA	N :											7									- 2					
EXCA	VATIO	ON E	QUIPN	MENT	USED):	100	VR	=	310	9							DATE	EXC	AVAT	ED:	71:	29 Max.	09			
WATE	ER LE	VEL:					APPF	ROX. [DIMEN	IS:	Leng	th:		0	4		Width	:	24	*		- 1	Max.	Depth	: 1-	51	t
					so	IL DES	CRIPT	ION							0				1		MMEN					· v	
SOIL	NAME	, USC	S GR	OUP S'	YMBOL	, COL	OR, MO	DISTU	RE CO	NTENT	r, REL	ATIVE		DIFFI	CULTY	IN EX	CAVAT	TION, F	RUNNII	NG GR	RAVEL	COND	ITION,	COLL	APSE	OF WA	ALLS,
DENS	ITY, OI	R CON	NSISTE	ENCY,	SOIL S	TRUC	TURE,	MINE	RALOG	iΥ				DIFFICULTY IN EXCAVATION, RUNNING GRAVEL CONDITION, COLLAPSE OF WALLS, SAND HEAVE, DEBRIS ENCOUNTERED, WATER SEEPAGE, GRADATIONAL CONTACTS, TESTS, INSTRUMENTS.													
												T	est Pit	Dimen	tions ((ft)											
		Sout	h		201			201	20																W .	f	North
Scal	e (ft)		2	TO	Km 14		6		8		10		12		14		16		18		20		22		24		26
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OVM (ppm): Headspace Analysis

OVM (ppm):

Breathing Zone Analysis



North Carolina Department of Environment and Natural Resources- Division of Water Quality

well contractor certification # 20/2

	THE POST OF THE PO	
1. WELL CONTRACTOR:		5. WELL DETAILS:
		a. Total Depth: 16 ft. Diameter: 1 in.
Well Contractor (Individual) Name		b. Water Level (Below Measuring Point):ft.
SAEDACCO, INC.		Measuring point is fi. above land surface.
Well Contractor Company Name	07// 5 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	
STREET ADDRESS 9088 NO		6. CASING: Length Diameter
FORT MILL SC City or Town State	29707	a. Casing Depth (if known): ft in.
City or Town State	Zip Code	b. Casing Removed:fiin.
Area code - Phone number		7. DISINFECTION: 0.1615
		(Amount of 65%-75% calcium hypochlorite used)
2. WELL INFORMATION: SITE WELL ID # (if applicable)	(*)	11
SILE WELL ID # (II applicable)	<u>~</u>	8. SEALING MATERIAL:
STATE WELL PERMIT # (if applicable).		Neat Cement Sand Cement
COUNTY WELL PERMIT # (if applicable)_		Cement lb. Cement lb. Water gal. Water gal.
DWQ or OTHER PERMIT # (if applicable)_		Bentonite
WELL USE (Circle applicable use): Monito		Bentonite 5 lb.
Municipal/Public Industrial/Commerce Recovery Injection Irrigation	cial Agricultural	Type: Slurry Poliets 🗶
Other (list use)		Water <u>O. (a) g</u> al.
3. WELL LOCATION:	·	<u>Other</u>
COUNTY CNISCOLD QUADRANGLE	NI A MATE	Type material
NEAREST TOWN: JACKSONVIL		Amount
CAMD JOHNSON	<u>.e., 700</u>	
(Street/Road Name, Number, Community, Subdivis	ion Lor No. Parcel Zin Code)	9. EXPLAIN METHOD OF EMPLACEMENT OF MATERIAL:
TOPOGRAPHIC / LAND SETTING:	,,,	BORCHOLE WAS FILED WITH CHIPS AFTER
Slope Valley Flat Ridge Other		WELL WAS ZEMOUED
(Circle appropriate setting)		
LATITUDE	May be in degrees,	
LONGITUDE	minutes, seconds, or in a decimal format	10. WELL DIAGRAM: Draw a detailed sketch of the well on the back of this
Latitude/longitude source: GPS	Topographic map	form showing total depth, depth and diameter of screens (if any) remaining
(Location of well must be shown on a U.	, - ,	in the well, gravel interval, intervals of casing perforations, and depths and
attached to this form if not using GPS.,		types of fill materials used.
a. FACILITY-The name of the business where the we (If a residential well, akip 4a; complete 4b, well owner		11. DATE WELL ABANDONED 7/29/09
FACILITY ID #(if applicable)		I DO HEREBY CERTIFY THAT THIS WELL WAS ABANDONED IN ACCORDANCE
NAME OF FACILITY CAMP JO	HOSON	WITH 15A NCAC 2C, WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF
STREET ADDRESS JACK Separation NC		THIS RECORD HAS BEEN PROVIDED TO THE WELL OWNER.
JACKSCHULLE NC		(c/13/C)
	Zip Code	SIGNATURE OF CERTIFIED WELL CONTRACTOR DATE
b. CONTACT PERSON/WELL OWNER:	17m on 11	
NAME K-CRI HAURER CI		SIGNATURE OF PRIVATE WELL OWNER ABANDONING THE WELL DATE (The private well owner must be an individual who personally abandons his/her residential well
STREET ADDRESS 4824 PARKL		in accordance with 15A NCAC 2C .0113.)
CHARW77E NC City or Town State 2		FRINTED NAME OF PERSON ABANDONING THE WELL
City or Town State 2	Cip Code	PRINTED NAME OF PERSON ABANDONING THE WELL
(704)- 975-2980		
Area code - Phone number		



North Carolina Department of Environment and Natural Resources- Division of Water Quality

1. WELL CONTRACTOR:	5. WELL DETAILS:
TIM THOMAS	a, Total Depth: 15 ft. Diameter: 1 in.
Well Contractor (Individual) Name	b. Water Level (Below Measuring Point): ft.
SAE DACCO, TNC, Well Contractor Company Name	Measuring point is ft. above land surface.
STREET ADDRESS SOR NORTHFIELD DR	6. CASING: Length Diameter
FORT MILL SC 29707 City of Town State Zip Code	a. Casing Depth (if known): b. Casing Removed: ft. in.
(843) 548 ZIBO	
Area code - Phone number	7. DISINFECTION: 0.1615
2. WELL INFORMATION:	(Amount of 65%-75% calcium hypochlorite used)
SITE WELL ID # (if applicable) 700 - 2	8. SEALING MATERIAL:
STATE WELL PERMIT # (if applicable)	Neat Cement Sand Cement
COUNTY WELL PERMIT # (if applicable)	Cement lb. Cement lb. Water gal. Water gal.
DWQ or OTHER PERMIT # (if applicable)	<u>Bentonite</u>
WELL USE (Circle applicable use): Monitoring Residential Municipal/Public Industrial/Commercial Agricultural Recovery Injection Irrigation Other (list use)	Bentonite 4 lb. Type: Slurry Pellets X Water 0.62 gal.
Other (list use)	Other
3. WELL LOCATION:	
COUNTY CNSLOW QUADRANGLE NAME	Type material
NEAREST TOWN: TACKSONVICE NC CAMD JOHNSON	Amount
(Street/Road Name, Number, Community, Subdivision, Lot No., Parcel, Zip Code)	9. EXPLAIN METHOD OF EMPLACEMENT OF MATERIAL:
TOPOGRAPHIC / LAND SETTING:	BORCHOLE WAS FILED WITH CHIPS AFTER
Slope Valley Flat Ridge Other (Circle appropriate setting)	WELL WAS ZEMWED
LATITUDE May be in degrees,	
decimal format	11. 10. WELL BY A CRAM, Down a detailed should of the small on the late of
Latitude/longitude source: GPS Topographic map	10. WELL DIAGRAM: Draw a detailed sketch of the well on the back of this form showing total depth, depth and diameter of screens (if any) remaining
(Location of well must be shown on a USGS topo map and attached to this form if not using GPS.)	in the well, gravel interval, intervals of casing perforations, and depths and types of fill materials used.
a. FACILITY- The name of the business where the well is located. Complete 4a and 4b. (If a residential well, :kip 4a; complete 4b, well owner information only.)	11. DATE WELL ABANDONED 7/29/09
FACILITY ID #(if applicable)	I DO HEREBY CERTIFY THAT THIS WELL WAS ABANDONED IN ACCORDANCE
NAME OF FACILITY CAMP JOHNSON	WITH 15A NCAC 2C, WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF THIS RECORD HAS BEEN PROVIDED TO THE WELL OWNER.
STREET ADDRESS	1 1 0
STREET ADDRESS TACK SCHOOL C	SIGNATURE OF CERTIFIED WELL CONTRACTOR DATE
b. CONTACT PERSON/WELL OWNER:	
NAME KEDI 1-LAUREDE, CHZM HICK	SIGNATURE OF PRIVATE WELL OWNER ABANDONING THE WELL DATE
STREET ADDRESS 4824 PARKWAY PLAZA BULD	(The private well owner must be an individual who <u>personally</u> abandons his/her residential well in accordance with 15A NCAC 2C .0113.)
City or Town State Zip Code	TIM THOMAS PRINTED NAME OF PERSON ABANDONING THE WELL
	FRINTED NAME OF PERSON ABANDONING THE WELL
(704) - <u>775 7980</u> Area code - Phone number	
Area code - Fhone minner	•



WELL CONTRACTOR CERTIFIC	CATION # 2012
1. WELL CONTRACTOR:	5. WELL DETAILS:
TIM THOMAS Well Contractor (Individual) Name	a. Total Depth: 20 ft. Diameter: 1 in. b. Water Level (Below Measuring Point): ft.
SAE DACCO, TNC. Well Contractor Company Name	Measuring point is ft. above land surface.
STREET ADDRESS SICRY NORTHFIELD DR	6. CASING: Length Diameter
FORT MILL SC 29707 City or Town State Zip Code	a. Casing Depth (if known): b. Casing Removed: ft. in. in.
$\frac{(89)}{\text{Area code - Phone number}} \leq 48 \geq 180$	7. DISINFECTION: 0, 16 15
2. WELL INFORMATION:	(Amount of 65%-75% calcium hypochlorite used)
SITE WELL ID # (if applicable) 700-3	8. SEALING MATERIAL:
STATE WELL PERMIT # (if applicable)	Neat Cement Sand Cement
COUNTY WELL PERMIT # (if applicable)	Cement lb. Cement lb. Water gal. Water gal.
DWQ or OTHER PERMIT # (if applicable)	Bentonite
WELL USE (Circle applicable use): Monitoring Residential Municipal/Public Industrial/Commercial Agricultural Recovery Injection Irrigation	Bentonite Ib. Type: Slurry Pellets \(\Lambda \) Water \(\Ordoj{0}, \bar{8}\)Z gal.
Other (list use)	<u> </u>
3. WELL LOCATION:	Other
COUNTY CNSLCCO QUADRANGLE NAME	Type material
NEAREST TOWN: JACKSONVILLE, NC CAMP JOHNSON	Amount
(Street/Road Name, Number, Community, Subdivision, Lot No., Parcel, Zip Code)	9. EXPLAIN METHOD OF EMPLACEMENT OF MATERIAL:
TOPOGRAPHIC / LAND SETTING:	BORCHOLE WAS FILED WITH CHIPS AFTER
Slope Valley Flat Ridge Other (Circle appropriate setting)	WELL WAS ZEMOUED.
May be in degrees,	
LATITUDE minutes, seconds, or in a decimal format	10 WELL DIACRAM Down detailed should effect will be stold a con-
LONGITUDE Latitude/longitude source: GPS Topographic map (Location of well must be shown on a USGS topo map and attached to this form if not using GPS.)	10. WELL DIAGRAM: Draw a detailed sketch of the well on the back of this form showing total depth, depth and diameter of screens (if any) remaining in the well, gravel interval, intervals of casing perforations, and depths and types of fill materials used.
4a. FACILITY- The name of the business where the well is located. Complete 4a and 4b. (If a residential well, ckip 4a; complete 4b, well owner information only.)	11. DATE WELL ABANDONED 7/29/09
NAME OF FACILITY CAMP JOHNSON	I DO HEREBY CERTIFY THAT THIS WELL WAS ABANDONED IN ACCORDANCE
NAME OF FACILITY CAMP JOHNSON	WITH 15A NCAC 2C, WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF THIS RECORD HAS BEEN PROVIDED TO THE WELL OWNER.
STREET ADDRESS	
STREET ADDRESS IT ALL SCHOOL CO A C City or Town State Zip Code	SIGNATURE OF CERTIFIED WELL CONTRACTOR DATE
4b. CONTACT PERSON/WELL OWNER:	
NAME KERT HALRESE CHEM HILL	SIGNATURE OF PRIVATE WELL OWNER ABANDONING THE WELL DATE (The private well owner must be an individual who personally abandons his/her residential well
STREET ADDRESS 4824 PARKWAY PLAZA BLUD	in accordance with 15A NCAC 2C .0113.)
CHARW77E NC City or Town State Zip Code	TIM THOMAS PRINTED NAME OF PERSON ABANDONING THE WELL
(704) - 975 - 2980 Area code - Phone number	



1. WELL CONTRACTOR:		5.	WELL DETAILS:	
TIM THOMAS			a. Total Depth: 16 ft.	Diameter: 1 in.
Well Contractor (Individual) Name			b. Water Level (Below Measuring	
SAEDACCO, INC.			Measuring point is	ft. above land surface.
Well Contractor Company Name				
STREET ADDRESS 9088 NO		6.	CASING:	Length Diameter
FORT MILL SC City or Town State	29707		a. Casing Depth (if known):	ft. <u>1</u> in.
City or Town State	Zip Code		b. Casing Removed:	fi. in.
803 - 548-2180 Area code - Phone number		7.	DISINFECTION: 0,16	16
Area code - I notic number				
2. WELL INFORMATION: SITE WELL ID # (if applicable)	13-4		(Amount of 65%-75% calcium hy	/pochlorite used)
SITE WELL ID # (II applicable) / C		8.	SEALING MATERIAL:	
STATE WELL PERMIT # (if applicable)			Neat Cement	Sand Cement
COUNTY WELL PERMIT # (if applicable)_			Cementlb. Watergal.	Cementlb. Watergał,
DWQ or OTHER PERMIT # (if applicable)			Bentonite	
Recovery Injection Irrigation	cial Agricultural		Bentonite lb. Type: Slurry Pellets \(\) Water \(\) \(\) \(\) gal.	
Other (list use)	-14-T-116		Other	
3. WELL LOCATION:		ΙÍ		
COUNTY CNSLOW QUADRANGLE	NAME		Type material	
NEAREST TOWN: JACKSONVIL	LE NC		Amount	
CAMP JOHNSON	-		•	
(Street/Road Name, Number, Community, Subdivis	ion, Lot No., Parcel, Zip Code)	9.	EXPLAIN METHOD OF EMPL	ACEMENT OF MATERIAL:
TOPOGRAPHIC / LAND SETTING:			BOREHOLE WAS FILL	
Slope Valley Flat Ridge Other (Circle appropriate setting)			WELL WAS ZEMOVED)
(· · · · ·			•	
LATITUDE	May be in degrees, minutes, seconds, or in a			
LONGITUDE	decimal format	10.	WELL DIAGRAM: Draw a detail	ed sketch of the well on the back of this
Latitude/longitude source: GPS	Topographic map] [nd diameter of screens (if any) remaining
(Location of well must be shown on a Us attached to this form if not using GPS.)			in the well, gravel interval, interval types of fill materials used.	ls of casing perforations, and depths and
4a. FACILITY-The name of the business where the we			types of fin materials used.	7/29/09
(If a residential well, akip 4a; complete 4b, well owner	• *	11.	DATE WELL ABANDONED	114101
FACILITY ID #(if applicable) NAME OF FACILITY CAMP (C		11		WAS ABANDONED IN ACCORDANCE
			I 15A NCAC 2C, WELL CONSTRUCTION RECORD HAS BEEN PROVIDED TO T	ON STANDARDS, AND THAT A COPY OF THE WELL OWNER.
STREET ADDRESS				1/2/04
City or Town State	Zip Code	SIGN	ATURE OF CERTIFIED WELL CON	TRACTOR DATE
4b. CONTACT PERSON/WELL OWNER:		[]		
NAME KUDI HAURUDE, CI	12m HICC	SIGN	ATURE OF PRIVATE WELL OWNER	R ABANDONING THE WELL DATE
STREET ADDRESS 4824 PACKLE		(The p		tho personally abandons his/her residential well
		1 [· ·	
CHARCUTTE NC City or Town State Z	Sip Code	PRIN	M THOMAS TED NAME OF PERSON ABANDONI	NG THE WELL
-				
(704) - 975 - 2980 Area code - Phone number				



2012

North Carolina Department of Environment and Natural Resources- Division of Water Quality

1. WELL CONTRACTOR:		5.	WELL DETAILS:
TIM THOMAS	····		a. Total Depth: 16 ft. Diameter: 1 in.
Well Contractor (Individual) Name			b. Water Level (Below Measuring Point): ft.
SAEDACCO ZNC. Well Contractor Company Name			Measuring point isft. above land surface.
STREET ADDRESS 9088 N		6.	CASING: Length Diameter
FORT MILL SC City or Town State	29707 Zip Code		a. Casing Depth (if known): ft. in. b. Casing Removed: ft. in.
Area code - Phone number		7.	DISINFECTION: 0,1615
. WELL INFORMATION:			(Amount of 65%-75% calcium hypochlorite used)
SITE WELL ID # (if applicable) /	<u> で - 5</u>	8.	SEALING MATERIAL:
STATE WELL PERMIT # (if applicable)			Neat Cement Sand Cement
COUNTY WELL PERMIT # (if applicable)			Cement lb. Cement lb. Water gal. Water gal.
DWQ or OTHER PERMIT # (if applicable)			Bentonite
WELL USE (Circle applicable use): (Monit Municipal/Public Industrial/Commen Recovery Injection Irrigation Other (list use)	rcial Agricultural		Bentonite lb. Type: Slurry Pellets_X Water O _ G G gal.
			Other
3. WELL LOCATION:			Type material
COUNTY CASLOW QUADRANGLE	<u></u>		Amount
NEAREST TOWN: TACKSONVICE CAMP JOHNSON	ce, roc		/ Industry
(Street/Road Name, Number, Community, Subdivi	ision, Lot No., Parcel, Zip Code)	9.	EXPLAIN METHOD OF EMPLACEMENT OF MATERIAL:
TOPOGRAPHIC / LAND SETTING:			BORCHOLE WAS FILLED WITH CHIPS AFTER
Slope Valley Flat Ridge Other_ (Circle appropriate setting)			well was zemoved
LATITUDE	May be in degrees,		
LATITUDE	minutes, seconds, or in a decimal format	10.	WELL DIAGRAM: Draw a detailed sketch of the well on the back of this
Latitude/longitude source: GPS	Topographic map		form showing total depth, depth and diameter of screens (if any) remaining
(Location of well must be shown on a L attached to this form if not using GPS	ISGS topo map and		in the well, gravel interval, intervals of casing perforations, and depths and types of fill materials used.
a. FACILITY: The name of the business where the w (If a residential well, ckip 4a; complete 4b, well own		11.	DATE WELL ABANDONED 7/29/09
FACILITY ID #(if applicable)	1	IDO	HEREBY CERTIFY THAT THIS WELL WAS ABANDONED IN ACCORDANCE
NAME OF FACILITY CAMP JC	21102C2		H 15A NCAC 2C, WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF RECORD HAS BEEN PROVIDED TO THE WELL OWNER.
STREET ADDRESS			
TACK SCHOOLE NC City or Town State	Zip Code	SIGN	NATURE OF CERTIFIED WELL CONTRACTOR DATE
o. CONTACT PERSON/WELL OWNER:	•		
NAME KERI HAURORG C	HZM HICC		ATURE OF PRIVATE WELL OWNER ABANDONING THE WELL DATE
STREET ADDRESS 4824 PARKL			private well owner must be an individual who <u>personally</u> abandons his/her residential we cordance with 15A NCAC 2C .0113.)
CHAV2CC77C NC City or Town State		11 7	im THOMAS
City or Town State	Zip Code	PRIN	TED NAME OF PERSON ABANDONING THE WELL
(704) - 775 - 298() Area code - Phone number	-		
Area code - Phone number		11	



1. WELL CONTRACTOR:	5. WELL DETAILS:
TIM THOMAS	a. Total Depth: 16 ft. Diameter: 1 in.
Well Contractor (Individual) Name	b. Water Level (Below Measuring Point): fi.
SAE DACCO, INC. Well Contractor Company Name	Measuring point is ft. above land surface.
STREET ADDRESS <u>GC 8 8 NORTHFIELD</u> DR	6. CASING: Length Diameter
FORT MILL SC 29707 City of Town State Zip Code	a. Casing Depth (if known): ft in. b. Casing Removed: ft in.
Area code - Phone number	7. DISINFECTION: O.16 15
2. WELL INFORMATION:	(Amount of 65%-75% calcium hypochlorite used)
SITE WELL ID # (if applicable) 760 - 6	8. SEALING MATERIAL:
STATE WELL PERMIT # (if applicable)	Neat Cement Sand Cement
COUNTY WELL PERMIT # (if applicable)	Cement lb. Cement lb. Water gal. Water gal.
DWQ or OTHER PERMIT # (if applicable)	Bentonite
WELL USE (Circle applicable use): Monitoring Residential Municipal/Public Industrial/Commercial Agricultural Recovery Injection Irrigation	Bentonite lb. Type: Slurry Pellets 🖔 Water O , G G gal.
Other (list use)	Other
3. WELL LOCATION:	
COUNTY CNSLOW QUADRANGLE NAME	Type material
NEAREST TOWN: TACKSONVICLE, NC	Amount
CAMP JOHNSON	
(Street/Road Name, Number, Community, Subdivision, Lot No., Parcel, Zip Code)	9. EXPLAIN METHOD OF EMPLACEMENT OF MATERIAL:
TOPOGRAPHIC / LAND SETTING:	BUZCHOLE WAS FILLED WITH CHIPS AFTER
Slope Valley Flat Ridge Other	WELL WAS ZEMOUED
. (Circle appropriate setting)	
LATITUDE May be in degrees, minutes, seconds, or in a decimal format	
LONGITUDE	10. WELL DIAGRAM: Draw a detailed sketch of the well on the back of this
Latitude/longitude source: GPS Topographic map (Location of well must be shown on a USGS topo map and attached to this form if not using GPS.)	form showing total depth, depth and diameter of screens (if any) remaining in the well, gravel interval, intervals of casing perforations, and depths and types of fill materials used.
4a. FACILITY-The name of the business where the well is located. Complete 4a and 4t (If a residential well, Jkip 4a; complete 4b, well owner information only.)	11. DATE WELL ABANDONED 7/29/09
FACILITY ID #(if applicable)	I DO HEREBY CERTIFY THAT THIS WELL WAS ABANDONED IN ACCORDANCE
NAME OF FACILITY CAMP JOHNSON	WITH 15A NCAC 2C, WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF
STREET ADDRESS Or ACIE SCIPLLE COMPANY City or Town State Zip Code	THIS RECORD HAS BEEN PROVIDED TO THE WELL OWNER.
TACKSCHULLE NC	SIGNATURE OF CERTIFIED WELL CONTRACTOR DATE
Ciry or Town State Zip Code	SIGNATURE OF CERTIFIED WELL CONTRACTOR DATE
4b. CONTACT PERSON/WELL OWNER:	
NAME KETZI HAURGZE, CHZM HILL	SIGNATURE OF PRIVATE WELL OWNER ABANDONING THE WELL DATE
STREET ADDRESS 4824 PARKWAY PLAZA BLUD	(The private well owner must be an individual who personally abandons his/her residential well in accordance with 15A NCAC 2C .0113.)
CHARLO77E NC City or Town State Zip Code	TIM THOMAS PRINTED NAME OF PERSON ABANDONING THE WELL
City or Town State Zip Code	PRINTED NAME OF PERSON ABANDONING THE WELL
(709)- 975-298C	
Area code - Phone number	



1. WELL CONTRACTOR:		5.	WELL DETAILS:			
TIM THOMAS		a. Total Depth: 16 ft. Diameter: 1 in.				
Well Contractor (Individual) Name			b. Water Level (Below Measuring Point):ft.			
SAE DACCO, TNC. Well Contractor Company Name			Measuring point isft. above land surface.			
STREET ADDRESS 9088 NO	_	6.	. CASING: Length Diameter			
FORT MILL SC City or Town State	Zip Code		a. Casing Depth (if known): ft. in. b. Casing Removed: ft. in.			
(893) 548 ZIBO						
Area code - Phone number		7.	DISINFECTION: 0.16 15			
2. WELL INFORMATION:	w - 7		(Amount of 65%-75% calcium hypochlorite used)			
SITE WELL ID # (if applicable) / (C = I	8.	SEALING MATERIAL:			
STATE WELL PERMIT # (if applicable)			Neat Cement Sand Cement			
COUNTY WELL PERMIT # (if applicable)_			Cement lb. Cement lb. Water gal. Water gal.			
DWQ or OTHER PERMIT # (if applicable)_			Bentonite			
WELL USE (Circle applicable use): Monite Municipal/Public Industrial/Commer Recovery Injection Irrigation Other (list use)	cial Agricultural		Bentonite lb. Type: Slurry Peliets Water C. G.G. gal.			
(100 200)			<u>Other</u>			
3. WELL LOCATION:			Type material			
COUNTY CNSLOW QUADRANGLE						
NEAREST TOWN: <u>TACKSONVIC</u> CAMD JOHNSON			Amount			
(Street/Road Name, Number, Community, Subdivis		9.	EXPLAIN METHOD OF EMPLACEMENT OF MATERIAL:			
TOPOGRAPHIC / LAND SETTING:			BUREHOLE WAS FILLED WITH CHIPS AFTER			
Slope Valley Flat Ridge Other			WELL WAS ZEMOVED			
	May be in degrees,					
LATITUDE	minutes, seconds, or in a decimal format					
LONGITUDE	<u> </u>	10.	. WELL DIAGRAM: Draw a detailed sketch of the well on the back of this			
Latitude/longitude source: GPS (Location of well must be shown on a U.			form showing total depth, depth and diameter of screens (if any) remaining in the well, gravel interval, intervals of casing perforations, and depths and			
attached to this form if not using GPS.			types of fill materials used.			
4a. FACILITY- The name of the business where the w (If a residential well, skip 4a; complete 4b, well owne	•	11.	DATE WELL ABANDONED 7/29/09			
FACILITY ID #(if applicable)	-	100	HEREBY CERTIFY THAT THIS WELL WAS ABANDONED IN ACCORDANCE			
NAME OF FACILITY CAMP JC	HWS CW	wr	TH 15A NCAC 2C, WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF			
STREET ADDRESS		Ini	S RECORD HAS BEEN PROVIDED TO THE WELL OWNER.			
City or Town State Zip Code		SIG	NATURE OF CERTIFIED WELL CONTRACTOR DATE			
4b. CONTACT PERSON/WELL OWNER:						
NAME KERT HAURURE CH	42111111CC		NATURE OF PRIVATE WELL OWNER ABANDONING THE WELL DATE			
STREET ADDRESS 4824 PARKL	JAY PLAZA BLUD		private well owner must be an individual who personally abandons his/her residential well ecordance with 15A NCAC 2C .0113.)			
		1 -7	in THOMA			
City or Town State	Zip Code	PRI	NTED NAME OF PERSON ABANDONING THE WELL			
(704)- 975-2980						
Area code - Phone number						



1. WELL CONTRACTOR:	5. WELL DETAILS:
TIM THOMAS	a. Total Depth: 17 ft. Diameter: 1 in.
Well Contractor (Individual) Name	b. Water Level (Below Measuring Point): ft.
SAE DACCO TNC. Well Contractor Company Name	Measuring point is ft. above land surface.
STREET ADDRESS SORY NORTHFIELD DR	6. CASING: Length Diameter
FORT MILL SC 29707 City or Town State Zip Code (843) 548 2180	a. Casing Depth (if known): b. Casing Removed: ft. in. in.
Area code - Phone number	7. DISINFECTION:
2. WELL INFORMATION:	(Amount of 65%-75% calcium hypochlorite used)
SITE WELL ID # (if applicable) 700 - 8	8. SEALING MATERIAL:
STATE WELL PERMIT # (if applicable)	Neat Cement Sand Cement
COUNTY WELL PERMIT # (if applicable)	Cement lb. Cement lb. Water gal. Water gal.
DWQ or OTHER PERMIT # (if applicable)	<u>Bentonite</u>
WELL USE (Circle applicable use): Monitoring Residential Municipal/Public Industrial/Commercial Agricultural Recovery Injection Irrigation Other (list use)	Bentonite
	Other Other
3. WELL LOCATION: COUNTY CNSUCLU QUADRANGLE NAME	Type material
	Amount
NEAREST TOWN: <u>TACKSONVICE</u> , NC CAMP JOHNSON	
(Street/Road Name, Number, Community, Subdivision, Lot No., Parcel, Zip Code)	9. EXPLAIN METHOD OF EMPLACEMENT OF MATERIAL:
TOPOGRAPHIC / LAND SETTING: Slope Valley Flat Ridge Other (Circle appropriate setting)	BORCHOLE WAS FILLED WITH CHIPS AFTER WELL WAS REMOVED
LATITUDE May be in degrees, minutes, seconds, or in a decimal format	
LONGITUDE	10. WELL DIAGRAM: Draw a detailed sketch of the well on the back of this
Latitude/longitude source: GPS Topographic map (Location of well must be shown on a USGS topo map and attached to this form if not using GPS.)	form showing total depth, depth and diameter of screens (if any) remaining in the well, gravel interval, intervals of easing perforations, and depths and types of fill materials used.
a. FACILITY-The name of the business where the well is located. Complete 4a and 4b.	11. DATE WELL ABANDONED 7/29/09
(If a residential well, :kip 4a; complete 4b, well owner information only.) FACILITY ID #(if applicable)	II. DATE WELL ABANDONED
NAME OF FACILITY CAMP JOHNSON	I DO HEREBY CERTIFY THAT THIS WELL WAS ABANDONED IN ACCORDANCE WITH 15A NCAC 2C, WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF
STREET ADDRESS	THIS RECORD HAS BEEN PROVIDED TO THE WELL OWNER.
NAME OF FACILITY CAMP JOHNS CO. STREET ADDRESS JACK SCIUCLE NC City or Town State Zip Code	SIGNATURE OF CERTIFIED WELL CONTRACTOR DATE
b. CONTACT PERSON/WELL OWNER:	
	SIGNATURE OF PRIVATE WELL OWNER ABANDONING THE WELL DATE
NAME KUDI HAWRONG CHZM HILL STREET ADDRESS 4824 PARKWAY PLAZA BUD	(The private well owner must be an individual who personally abandons his/her residential well in accordance with 15A NCAC 2C .0113.)
	Tim Thomas
City or Town State Zip Code	PRINTED NAME OF PERSON ABANDONING THE WELL
(704)- 975-298C	
Area code - Phone number	



well contractor certification # 2012

1. WELL CONTRACTOR:		5.	WELL DETAILS:		
TIM THOMAS			a. Total Depth: 16	ft. Diameter: 1	in.
Well Contractor (Individual) Name			b. Water Level (Below Measur		
SAEDACCO, INC.			Measuring point is	ft, above land surface.	,
Well Contractor Company Name	- 0-211 > >>		0.000		
STREET ADDRESS GC 8 8 NO		6.	CASING:	Length Diant	icter
FORT MILL SC City of Town State	29/0/		a. Casing Depth (if known):		
(843) = 548 2180	Zip Code		b. Casing Removed:	fi.	in.
Area code - Phone number		7.	DISINFECTION: 0.1	o 15	
2. WELL INFORMATION:			(Amount of 65%-75% calcium		
SITE WELL ID # (if applicable)	· v - 9	8.	SEALING MATERIAL:	,	
			Neat Cement	Sand Cement	
STATE WELL PERMIT # (if applicable)			<u> </u>		
COUNTY WELL PERMIT # (if applicable)_			Cement lb. Water gal.	Cement Water	
DWQ or OTHER PERMIT # (if applicable)_			Bentonite		
WELL USE (Circle applicable use): Monito Municipal/Public Industrial/Commerce			Bentonite 5 lb.		
Recovery Injection Irrigation		11	Type: Slurry_ Pellets X Water_ 0,66 ga	a i	
Other (list use)				ir,	
3. WELL LOCATION:			<u>Other</u>		
COUNTY CNSLOW QUADRANGLE	NAME	11	Type material		
NEAREST TOWN: JACKSONVIL			Amount		
CAMP JOHNSON					
(Street/Road Name, Number, Community, Subdivis	ion, Lot No., Parcel, Zip Code)	9.	EXPLAIN METHOD OF EM	IPLACEMENT OF MAT	ΓERIAL:
TOPOGRAPHIC / LAND SETTING:			BORCHOLE WAS FI	LLED WITH CHIPS	AFTER
Slope Valley Flat Ridge Other			WELL WAS ZEMON	EO	
(Circle appropriate setting)				<u> </u>	
LATITUDE	May be in degrees, minutes, seconds, or in a				
LONGITUDE	decimal format	10.	WELL DIAGRAM: Draw a de	etailed sketch of the well o	n the back of this
Latitude/longitude source: GPS	Topographic map		form showing total depth, deptl		. ,
(Location of well must be shown on a US attached to this form if not using GPS.)			in the well, gravel interval, inte	rvals of casing perforation	s, and depths and
In. FACILITY- The name of the business where the we			types of fill materials used.	1-1-0	
(If a residential well, skip 4a; complete 4b, well owner]] 11.	DATE WELL ABANDONED_	7/29/09	
FACILITY ID #(if applicable)		IDO	HEREBY CERTIFY THAT THIS WI	ELL WAS ABANDONED IN	ACCORDANCE
NAME OF FACILITY CAMP JO			I 15A NCAC 2C, WELL CONSTRUC RECORD HAS BEEN PROVIDED T		THAT A COPY OF
STREET ADDRESS					1 1.62
City or Town State Zip Code		SIGN	ATURE OF CERTIFIED WELL C	ONTRACTOR	10/13/09
b. CONTACT PERSON/WELL OWNER:	Zip Code				DAIL
NAME KERT HAURES CI	12 m ilii C		Artibe Arabay and door Are	MED AD ANDOUND THE	WELL P. Th
STREET ADDRESS 4824 PARKLE	LOW DE ATT A PLANT	(The p	ATURE OF PRIVATE WELL OW orivate well owner must be an individu		
		11 _	ordance with 15A NCAC 2C .0113.)		
CHAWW77E NC City or Town State Z	Vin Code	PRIN	M THOMAS TED NAME OF PERSON ABANDO	ONING THE WELL	
(704) - 975-2980					
Area code - Phone number		1 1			



" DDD CONTINCT ON CERTIF	TCATION # 2010
1. WELL CONTRACTOR:	5. WELL DETAILS:
TIM THOMAS	a. Total Depth: 16 ft. Diameter: 1 in.
Well Contractor (Individual) Name	b. Water Level (Below Measuring Point):ft.
SAEDACCO TNC. Well Contractor Company Name	Measuring point is ft. above land surface.
STREET ADDRESS 9088 NORTHFIELD DR	6. CASING: Length Diameter
FORT MILL SC 29707 City or Town State Zip Code	a. Casing Depth (if known): ft. in. b. Casing Removed: ft. in.
(83) 548 Z(80	
Area codc - Phone number	7. DISINFECTION: 0.1615
2. WELL INFORMATION:	(Amount of 65%-75% calcium hypochlorite used)
SITE WELL ID # (if applicable) / W 10	8. SEALING MATERIAL:
STATE WELL PERMIT # (if applicable)	Neat Cement Sand Cement
COUNTY WELL PERMIT # (if applicable)	Cement lb. Cement lb. Water gal. Water gal.
DWQ or OTHER PERMIT # (if applicable)	<u>Bentonite</u>
WELL USE (Circle applicable use): (Monitoring Residential Municipal/Public Industrial/Commercial Agricultural Recovery Injection Irrigation Other (list use)	Bentonite 5 lb. Type: Slurry Pellets 6 gal.
Other (list use)	Other
3. WELL LOCATION:	Type material
COUNTY CNSLOW QUADRANGLE NAME	· · · · · · · · · · · · · · · · · · ·
NEAREST TOWN: JACKSONVICE, NC	Amount
CAMD JOHNSON	
(Street/Road Name, Number, Community, Subdivision, Lot No., Parcel, Zip Code)	9. EXPLAIN METHOD OF EMPLACEMENT OF MATERIAL: BURCHOLE WAS FILLED WITH CHIPS AFTER
TOPOGRAPHIC / LAND SETTING: Slope Valley Flat Ridge Other	WELL WAS ZEMOVED
(Circle appropriate setting)	
LATITUDE May be in degrees,	
LATITUDE minutes, seconds, or in a decimal format	10. WELL DIAGRAM: Draw a detailed sketch of the well on the back of this
Latitude/longitude source: GPS Topographic map	form showing total depth, depth and diameter of screens (if any) remaining
(Location of well must be shown on a USGS topo map and	in the well, gravel interval, intervals of casing perforations, and depths and
attached to this form if not using GPS.)	types of fill materials used.
2. FACILITY: The name of the business where the well is located. Complete 4a and4 (If a residential well, ckip 4a; complete 4b, well owner information only.)	11. DATE WELL ABANDONED 7/29/09
FACILITY ID #(if applicable)	I DO HEREBY CERTIFY THAT THIS WELL WAS ABANDONED IN ACCORDANCE
NAME OF FACILITY CAMP JOHNSON	WITH 15A NCAC 2C, WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF THIS RECORD HAS BEEN PROVIDED TO THE WELL OWNER.
STREET ADDRESS	1
STREET ADDRESS Original State City or Town State Zip Code	SIGNATURE OF CERTIFIED WELL CONTRACTOR DATE
b. CONTACT PERSON/WELL OWNER:	
NAME KORT HAUROZO CHZMHICL	SIGNATURE OF PRIVATE WELL OWNER ABANDONING THE WELL DATE
STREET ADDRESS 4824 PARKLERY PLAZA BLUD	
	!
City or Town State Zip Code	PRINTED NAME OF PERSON ABANDONING THE WELL
(704)- 775-7980	
Area code - Phone number	



North Carolina Department of Environment and Natural Resources- Division of Water Quality

well contractor certification # 20/2

THE COL	TICKET ON CENTIFIC	<u> </u>	
1. WELL CONTRACTOR:	<u> </u>	5.	WELL DETAILS:
TIM THOMAS			a. Total Depth: 20 ft. Diameter: 1 in.
Well Contractor (Individual) Name	-		b. Water Level (Below Measuring Point): ft.
SAEDACCO, INC.			Measuring point is fi. above land surface.
Well Contractor Company Name	207115ELX NO		CASING: Lauth Dispuse
STREET ADDRESS 9088 NO		6.	CASING: Length Diameter
FORT MILL SC City of Town State	27/0/		a. Casing Depth (if known): ft. ft. in.
(803) - 548 2180	Zip Code		b. Casing Removed: ft. in.
Area code - Phone number		7.	DISINFECTION: 0,16 15
. WELL INFORMATION:			(Amount of 65%-75% calcium hypochlorite used)
SITE WELL ID # (if applicable)	v - 11	8.	SEALING MATERIAL:
			North Comment
STATE WELL PERMIT # (if applicable)			Neat Coment Sand Coment
COUNTY WELL PERMIT # (if applicable)			Cement lb. Cement lb. Water gal. Water gal.
DWQ or OTHER PERMIT # (if applicable)			Bentonite
WELL USE (Circle applicable use): Monit Municipal/Public Industrial/Commer Recovery Injection Irrigation Other (list use)	cial Agricultural		Bentonite
Other (fist use)			Other
3. WELL LOCATION:			Type material
COUNTY CNSLOW QUADRANGLE			
NEAREST TOWN: JACKSONVIC	ie, nc		Amount
CAMP JOHNSON			
(Street/Road Name, Number, Community, Subdivi	sion, Lot No., Parcel, Zip Code)	9.	EXPLAIN METHOD OF EMPLACEMENT OF MATERIAL:
TOPOGRAPHIC / LAND SETTING: Slope Valley Flat Ridge Other_			BORCHOLE WAS FILLED WITH CHIPS AFTER WELL WAS ZEENWED.
(Circle appropriate setting)			well was zemoles
	May be in degrees,		
LATITUDE	minutes, seconds, or in a decimal format		
LONGITUDE		10.	WELL DIAGRAM: Draw a detailed sketch of the well on the back of this form showing total depth, depth and diameter of screens (if any) remaining
Latitude/longitude source: GPS (Location of well must be shown on a L attached to this form if not using GPS			in the well, gravel interval, intervals of casing perforations, and depths and types of fill materials used.
a. FACILITY-The name of the business where the w (If a residential well, ckip 4a; complete 4b, well own		11.	DATE WELL ABANDONED 7/29/09
FACILITY ID #(if applicable)			HEREBY CERTIFY THAT THIS WELL WAS ABANDONED IN ACCORDANCE
NAME OF FACILITY CAMP JC	office co		H 15A NCAC 2C, WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF S RECORD HAS BEEN PROVIDED TO THE WELL OWNER.
STREET ADDRESS TACK SCHOOLEGE AS C City or Town State			1 1 2
Cincor Town	7in Code	SIG	NATURE OF CERTIFIED WELL CONTRACTOR DATE
	Zip Code		
NAME <u>FCRT 1-laurur</u> C	H2m Hu C		NATURE OF PRIVATE WELL OWNER ABANDONING THE WELL DATE
STREET ADDRESS 4824 PARKL	MU DINON DINO	(The	private well owner must be an individual who personally abandons his/her residential well
		1	eordance with 15A NCAC 2C .0113.)
CHAWW77E NC City or Town State	7 in Code	PRI	THE THOMA S
(704) - 775 - 7980) Area code - Phone number	-		
,00+ / HOME MAINUT			



	TIETOTOR OBITITION		
1. WELL CONTRACTOR:		5. WELL DETAILS:	
TIM THOMAS	 	a. Total Depth: 16 ft. Diameter: 1 in.	
Well Contractor (Individual) Name		b. Water Level (Below Measuring Point): ft.	
SAE DACCO TNC. Well Contractor Company Name		Measuring point is ft. above land surface.	
STREET ADDRESS 9088 NO	OPTHFIELD DR	6. CASING: Length Diameter	
		a Caring Double (if brown).	
FORT MILL SC City or Town State	Zip Code	a. Casing Depth (if known): ft. in. b. Casing Removed: ft. in.	
(843) - 548-2180		Įį.	
Area code - Phone number		7. DISINFECTION: 0.1615	
2. WELL INFORMATION: SITE WELL ID # (if applicable)	- 12	(Amount of 65%-75% calcium hypochlorite used)	
SITE WELL ID # (it applicable) /	<u> </u>	8. SEALING MATERIAL:	
STATE WELL PERMIT # (if applicable)		Neat Cement Sand Cement	
COUNTY WELL PERMIT # (if applicable)_		Cement lb. Cement lb. Water gal. Water gal.	
DWQ or OTHER PERMIT # (if applicable)_		<u>Bentonite</u>	
WELL USE (Circle applicable use): (Monite Municipal/Public Industrial/Commer Recovery Injection Irrigation Other (list use)	cial Agricultural	Bentonitelb. Type: SlurryPellets & WaterO	
		Other	
3. WELL LOCATION: COUNTY CNS LOCAL QUADRANGLE	NAME	Type material	
NEAREST TOWN: TACKSONVIL		Amount	
CAMP JOHNSON			
(Street/Road Name, Number, Community, Subdivis	sion, Lot No., Parcel, Zip Code)	9. EXPLAIN METHOD OF EMPLACEMENT OF MATERIAL:	
TOPOGRAPHIC / LAND SETTING:		BURCHOLE WAS FILLED WITH CHIPS AFTER	
Slope Valley Flat Ridge Other		WELL WAS ZEMOUED	
	May be in degrees,		
LATITUDE	minutes, seconds, or in a decimal format		
LONGITUDECRS	T	10. WELL DIAGRAM: Draw a detailed sketch of the well on the back of form showing total depth, depth and diameter of screens (if any) remains	
Latitude/longitude source: GPS (Location of well must be shown on a U	Topographic map SGS topo map and	in the well, gravel interval, intervals of casing perforations, and depths	
attached to this form if not using GPS.		types of fill materials used.	
a. FACILITY- The name of the business where the w (If a residential well, skip 4a; complete 4b, well owned)		11. DATE WELL ABANDONED 7/29/09	
FACILITY ID #(if applicable)		I DO HEREBY CERTIFY THAT THIS WELL WAS ABANDONED IN ACCORDANCE	
NAME OF FACILITY CAMP JC	1050m	WITH 15A NCAC 2C, WELL CONSTRUCTION STANDARDS, AND THAT A COPY THIS RECORD HAS BEEN PROVIDED TO THE WELL OWNER.	′ OF
STREET ADDRESS		vliz /c	٠j
STREET ADDRESS		SIGNATURE OF CERTIFIED WELL CONTRACTOR DATE	_
b. CONTACT PERSON/WELL OWNER:			
NAME K-CTZI HAURUZE C	HZM HICC	SIGNATURE OF PRIVATE WELL OWNER ABANDONING THE WELL DAT	
STREET ADDRESS 4824 PARKE	JAY PLAZA BLUD	(The private well owner must be an individual who <u>personally</u> abandons his/her residentia in accordance with 15A NCAC 2C .0113.)	ı well
City or Town State		PRINTED NAME OF PERSON ABANDONING THE WELL	
City or Town State	Zip Code	PRINTED NAME OF PERSON ABANDONING THE WELL	
(704)- 975-2980			
Area code - Phone number			



2012

WELL ABANDONMENT RECORD

North Carolina Department of Environment and Natural Resources- Division of Water Quality

1. WELL CONTRACTOR:	· · · · · · · · · · · · · · · · · · ·	5.	WELL DETAILS:
TIM THOMAS			a. Total Depth: 16 ft. Diameter: 1 in.
Well Contractor (Individual) Name			b. Water Level (Below Measuring Point):fi.
SAEDACCO, TNC. Well Contractor Company Name			Measuring point is ft. above land surface.
STREET ADDRESS 9088 N		6.	CASING: Length Diameter
FORT MILL SC City or Town State	29707 Zip Code		a. Casing Depth (if known): b. Casing Removed: ft. in.
Area code - Phone number	'	7.	0.1111
2. WELL INFORMATION:			(Amount of 65%-75% calcium hypochlorite used)
SITE WELL ID # (if applicable)	₩ - 13	8.	SEALING MATERIAL:
STATE WELL PERMIT # (if applicable)			Neat Cement Sand Cement
COUNTY WELL PERMIT # (if applicable)			Cement lb. Cement lb. Water gal.
DWQ or OTHER PERMIT # (if applicable)			Bentonite
WELL USE (Circle applicable use): Monit Municipal/Public Industrial/Commer Recovery Injection Irrigation Other (list use)	rcial Agricultural		Bentonite 5 lb. Type: Slurry Pellets 4 Water 0,66 gal.
			<u>Other</u>
3. WELL LOCATION:			Type material
COUNTY CNSLOW QUADRANGLE			Amount
NEAREST TOWN: TACKSONVICE CAMP JOHNSON	ie, Ne		Attioun
(Street/Road Name, Number, Community, Subdivi	ision, Lot No., Parcel, Zip Code)	9.	EXPLAIN METHOD OF EMPLACEMENT OF MATERIAL:
TOPOGRAPHIC / LAND SETTING:			BORCHOLE WAS FILLED WITH CHIPS AFTER
Slope Valley Flat Ridge Other (Circle appropriate setting)			WELL WAS ZEMWED
	May be in degrees,		
LATITUDE	minutes, seconds, or in a decimal format		
LONGITUDE		10.	WELL DIAGRAM: Draw a detailed sketch of the well on the back of this form showing total depth, depth and diameter of screens (if any) remaining
Latitude/longitude source: GPS (Location of well must be shown on a U attached to this form if not using GPS			in the well, gravel interval, intervals of easing perforations, and depths and types of fill materials used.
2. FACILITY- The name of the business where the v (If a residential well, skip 4a; complete 4b, well own		11.	DATE WELL ABANDONED 7/29/09
FACILITY ID #(if applicable)			HEREBY CERTIFY THAT THIS WELL WAS ABANDONED IN ACCORDANCE
NAME OF FACILITY CAMP JC	2405CM		H 15A NCAC 2C, WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF S RECORD HAS BEEN PROVIDED TO THE WELL OWNER.
STREET ADDRESS			who/69
City or Town State Zip Code		SIG	NATURE OF CERTIFIED WELL CONTRACTOR DATE
b. CONTACT PERSON/WELL OWNER:			
NAME KERT HAUREDE, C	HZM HILL		NATURE OF PRIVATE WELL OWNER ABANDONING THE WELL DATE
STREET ADDRESS 4824 PARKL			private well owner must be an individual who <u>personally</u> abandons his/her residential well cordance with 15A NCAC 2C .0113.)
CHAPLOTTE NC City or Town State		11 7	M THOMAS NTED NAME OF PERSON ABANDONING THE WELL
City or Town State	Zip Code	PRI	NTED NAME OF PERSON ABANDONING THE WELL
(704)- 975-2980	•		
Area code - Phone number		11	



North Carolina Department of Environment and Natural Resources- Division of Water Quality

	THE COR CERTIFY	CALLO	
1. WELL CONTRACTOR:		5.	WELL DETAILS:
TIM THOMAS			a. Total Depth: 16 ft. Diameter: 1 in.
Well Contractor (Individual) Name			b. Water Level (Below Measuring Point):fi.
SAEDACCO, INC.			Measuring point is fi. above land surface.
Well Contractor Company Name			
STREET ADDRESS 9088 N		6.	CASING: Length Diameter
FORT MILL SC City or Town State	29707 Zip Code		a. Casing Depth (if known): ft. ft. in. b. Casing Removed: ft. in.
Area code - Phone number		7.	5-11-11.
2. WELL INFORMATION:			(Amount of 65%-75% calcium hypochlorite used)
SITE WELL ID # (if applicable)	Tw - 14	8.	SEALING MATERIAL:
STATE WELL PERMIT # (if applicable)			Neat Cement Sand Cement
COUNTY WELL PERMIT # (if applicable)			Cement lb. Cement lb. Water gal. Water gal.
DWQ or OTHER PERMIT # (if applicable)	···		Bentonite
WELL USE (Circle applicable use): (Monit Municipal/Public Industrial/Commet Recovery Injection Irrigation Other (list use)	rcial Agricultural		Bentonite lb. Type: Slurry Pellets \(\Lambda \) Water \(\O \) (6 (6 \) gal.
			<u>Other</u>
3. WELL LOCATION:			Type material
COUNTY CNSLOW QUADRANGLE	.		
NEAREST TOWN: TACK SONVIC	IE, NC		Amount
CAMP JOHNSON			
(Street/Road Name, Number, Community, Subdivi	ision, Lot No., Parcel, Zip Code)	9.	EXPLAIN METHOD OF EMPLACEMENT OF MATERIAL: BORCHOLE WAS FILLED WITH CHIPX AFTER
TOPOGRAPHIC / LAND SETTING: Slope Valley Flat Ridge Other			LOTIC WAS ZEMOUED
(Circle appropriate setting)			
A A THIT IDE	May be in degrees,	Π	
LATITUDE	minutes, seconds, or in a decimal format		
LONGITUDE		10.	WELL DIAGRAM: Draw a detailed sketch of the well on the back of this form showing total depth, depth and diameter of screens (if any) remaining
Latitude/longitude source: GPS (Location of well must be shown on a U	Topographic map JSGS topo map and		in the well, gravel interval, intervals of casing perforations, and depths and
attached to this form if not using GPS	D)		types of fill materials used.
a. FACILITY- The name of the business where the v (If a residential well, Jkip 4a; complete 4b, well own	•	11.	DATE WELL ABANDONED 7/29/09
FACILITY ID #(if applicable)		IDO	HEREBY CERTIFY THAT THIS WELL WAS ABANDONED IN ACCORDANCE
NAME OF FACILITY CAMP JO	JHW2 CIV	WIT	H 15A NCAC 2C, WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF SRECORD HAS BEEN PROVIDED TO THE WELL OWNER.
STREET ADDRESS			
STREET ADDRESS JACK SCHOOLE NC City or Town State	7:- Code	SIG	YATURE OF CERTIFIED WELL CONTRACTOR DATE
	Zip Code		ANIONE OF CENTIFIED WEED CONTRACTOR
b. CONTACT PERSON/WELL OWNER:	H2m His		ALTERNA OF BRILLIAND WALL OWNERS AS AND AND AND THE WALL OF THE STREET
NAME K-CTZI HALLROZG C		(The	NATURE OF PRIVATE WELL OWNER ABANDONING THE WELL DATE private well owner must be an individual who personally abandons his/her residential well
STREET ADDRESS 4824 PARK		!	pordance with 15A NCAC 2C .0113.)
CHARCOTT NC City or Town State	7 in Code	PRIN	THOMA STEED NAME OF PERSON ABANDONING THE WELL
(704) - 775 - 2980 Area code - Phone number	-		



North Carolina Department of Environment and Natural Resources- Division of Water Quality

well contractor certification # 2012

1, 555 667	TIETET OK CENTIL		
. WELL CONTRACTOR:		5.	WELL DETAILS:
TIM THOMAS			a. Total Depth: 16 ft. Diameter: 1 in.
Well Contractor (Individual) Name			b. Water Level (Below Measuring Point):ft.
SAEDACCO, INC.			Measuring point is ft. above land surface.
Well Contractor Company Name	- 0-1/ > > >		
STREET ADDRESS 9088 N		6.	CASING: Length Diameter
FORT MILL SC City or Town State	29707		a. Casing Depth (if known): ft in.
City or Town State	Zip Code		b. Casing Removed: ft. in.
Area code - Phone number		7.	DISINFECTION: 0.1616
			(Amount of 65%-75% calcium hypochlorite used)
. WELL INFORMATION: SITE WELL ID # (if applicable)	<u>ت - ۱۲</u>	_ 8.	SEALING MATERIAL:
STATE WELL PERMIT # (if applicable)		-	Neat Cement Sand Cement
COUNTY WELL PERMIT # (if applicable)		-	Cement lb. Cement lb. Water gal. Water gal.
DWQ or OTHER PERMIT # (if applicable)		-	Bentonite
WELL USE (Circle applicable use): Monit Municipal/Public Industrial/Commer Recovery Injection Irrigation Other (list use)	cial Agricultural		Bentonite lb. Type: Slurry Pellets \(\(\) gal.
			Other
3. WELL LOCATION:			Type material
COUNTY CNSLOW QUADRANGLE			Amount
NEAREST TOWN: <u>TAUKSONVIC</u> CAMD JOHNSON	CE, NC		Amount
(Street/Road Name, Number, Community, Subdivi	sion Lat No. Bargal Zin Codu)	9.	EXPLAIN METHOD OF EMPLACEMENT OF MATERIAL:
	sion, Lot No., Parcel, Zip Code)	9.	ROZUHOLE WAS FILLED WITH CHIPS AFTER
TOPOGRAPHIC / LAND SETTING: Slope Valley Flat Ridge Other_			WELL WAS ZEMENED
(Circle appropriate setting)			
LATITUDE	May be in degrees,		
LONGITUDE	minutes, seconds, or in a decimal format	10	WELL DIAGRAM: Draw a detailed sketch of the well on the back of this
Latitude/longitude source: GPS	Topographic map		form showing total depth, depth and diameter of screens (if any) remaining
(Location of well must be shown on a L			in the well, gravel interval, intervals of casing perforations, and depths and
attached to this form if not using GPS	:)		types of fill materials used.
a. FACILITY- The name of the business where the w (If a residential well, 2kip 4a; complete 4b, well own		11.	DATE WELL ABANDONED 7/29/09
FACILITY ID #(if applicable)		IDOI	HEREBY CERTIFY THAT THIS WELL WAS ABANDONED IN ACCORDANCE
NAME OF FACILITY CAMP JO	54402 C√	WITH	I 15A NCAC 2C, WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF RECORD HAS BEEN PROVIDED TO THE WELL OWNER.
STREET ADDRESS		1	
STREET ADDRESS JACK SCHOOL NC City or Town State	7 in Code	SIGN	ATURE OF CERTIFIED WELL CONTRACTOR DATE
. CONTACT PERSON/WELL OWNER:	Zip code		
NAME KURT HAURER C	HZM HICC	SIGN	ATURE OF PRIVATE WELL OWNER ABANDONING THE WELL DATE
STREET ADDRESS 4824 PARK		(The p	private well owner must be an individual who <u>personally</u> abandons his/her residential well ordance with 15A NCAC 2C .0113.)
		11	
CHARCUTTE NC City or Town State	Zip Code	PRIN	M THOMAS TED NAME OF PERSON ABANDONING THE WELL
704) - 775-7980 Area code - Phone number	~		



		
1. WELL CONTRACTOR:		5. WELL DETAILS:
TIM THOMAS		a. Total Depth: 16 ft. Diameter: 1 in.
Well Contractor (Individual) Name		b. Water Level (Below Measuring Point):ft.
SAE DACCO TNC. Well Contractor Company Name		Measuring point is ft. above land surface.
STREET ADDRESS 9088 NO	<u>dethfield</u> De	6. CASING: Length Diameter
FORT MILL SC City or Town State (843) - 548 2180	29707 Zip Code	a. Casing Depth (if known): b. Casing Removed: ft. in.
Area code - Phone number		7. DISINFECTION: 0.1615
2. WELL INFORMATION:		(Amount of 65%-75% calcium hypochlorite used)
SITE WELL ID # (if applicable)	v - 16	8. SEALING MATERIAL:
STATE WELL PERMIT # (if applicable)		Neat Cement Sand Cement
COUNTY WELL PERMIT # (if applicable)_		Cementlb. Cementlb. Watergal. Watergal.
DWQ or OTHER PERMIT # (if applicable)_		Bentonite
WELL USE (Circle applicable use): (Monite Municipal/Public Industrial/Commer Recovery Injection Irrigation Other (list use)	cial Agricultural	Bentonite lb. Type: Slurry Pellets X Water O. 6 6 gal.
3. WELL LOCATION:		Other
COUNTY CASE CALL QUADRANGLE	NAME	Type material
NEAREST TOWN: JACKSON VIC		Amount
CAMP JOHNSON	National Control of the Control of t	
(Street/Road Name, Number, Community, Subdivis	sion, Lot No., Parcel, Zip Code)	9. EXPLAIN METHOD OF EMPLACEMENT OF MATERIAL:
TOPOGRAPHIC / LAND SETTING: Slope Valley Flat Ridge Other (Circle appropriate setting)		BORCHOLE WAS FILLED WITH CHIPS AFTER WELL WAS ZEMOUED
_	May be in degrees,	
LATITUDE	minutes, seconds, or in a decimal format	
LONGITUDE	T	10. WELL DIAGRAM: Draw a detailed sketch of the well on the back of this form showing total depth, depth and diameter of screens (if any) remaining
Latitude/longitude source: GPS (Location of well must be shown on a U. attached to this form if not using GPS.		in the well, gravel interval, intervals of casing perforations, and depths and types of fill materials used.
a. FACILITY-The name of the business where the w (If a residential well, skip 4a; complete 4b, well owne		11. DATE WELL ABANDONED 7/29/09
FACILITY ID #(if applicable)		I DO HEREBY CERTIFY THAT THIS WELL WAS ABANDONED IN ACCORDANCE
NAME OF FACILITY CAMP JO	HWSCA	WITH 15A NCAC 2C, WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF THIS RECORD HAS BEEN PROVIDED TO THE WELL OWNER.
STREET ADDRESS		
City or Town State	Zip Code	SIGNATURE OF CERTIFIED WELL CONTRACTOR DATE
b. CONTACT PERSON/WELL OWNER:		
NAME KURT HALREDE CI	42m HICC	SIGNATURE OF PRIVATE WELL OWNER ABANDONING THE WELL DATE
STREET ADDRESS 4824 PARKL		(The private well owner must be an individual who <u>personally</u> abandons his/her residential well in accordance with 15A NCAC 2C .0113.)
CHARLOTTE NC City or Town State 2	7. C.d.	TIM THOMAS PRINTED NAME OF PERSON ABANDONING THE WELL
•	_	
(704) - <u>775 7980</u> Area code - Phone number		



			<u> </u>	
I. WELL CONTRACTOR:	,	5.	WELL DETAILS:	
TIM THOMAS			a. Total Depth: 16 fi	t. Diameter: 1 in.
Well Contractor (Individual) Name			b. Water Level (Below Measurin	ng Point):ft.
SAEDACCO, INC.			Measuring point is	_ ft. above land surface.
Well Contractor Company Name				
STREET ADDRESS 9088 N		6.	CASING:	Length Diameter
FORT MILL SC. City or Town State	297c7		a. Casing Depth (if known):	ft. <u></u> in.
City or Town State	Zip Code		b. Casing Removed:	ft in.
Area code - Phone number	•	7.	DISINFECTION: 0.1	. 16
. WELL INFORMATION:			(Amount of 65%-75% calcium l	
SITE WELL ID # (if applicable)	w - 17	8.	SEALING MATERIAL:	
STATE WELL PERMIT # (if applicable)			Neat Cement	Sand Cement
COUNTY WELL PERMIT # (if applicable)			Cement lb. Water gal.	Cementlb. Watergal.
DWQ or OTHER PERMIT # (if applicable)			Bentonite	
WELL USE (Circle applicable use): (Monit Municipal/Public Industrial/Commen Recovery Injection Irrigation Other (list use)	rcial Agricultural		Bentonitelb. Type: SlurryPellets X Water 0 , 6 6 gal.	
·	180		<u>Other</u>	
3. WELL LOCATION: COUNTY CNSLC QUADRANGLE	NAME		Type material	
NEAREST TOWN: JACKSONVIC			Amount	
CAMP JOHNSON	ce, rou			
(Street/Road Name, Number, Community, Subdiv.	ision Lot No. Parcel Zin Code)	9.	EVDI AIN METHOD OF EMP	PLACEMENT OF MATERIAL:
TOPOGRAPHIC / LAND SETTING:	mon, Borrion, Pareen, Dip Code,	"		LED WITH CHIPS AFTER
			well was zemous	
	May be in degrees,			
LATITUDE	minutes, seconds, or in a decimal format			
LONGITUDE		10.		ailed sketch of the well on the back of this
Latitude/longitude source: GPS	Topographic map			and diameter of screens (if any) remaining vals of casing perforations, and depths and
(Location of well must be shown on a latached to this form if not using GPS			types of fill materials used.	
a. FACILITY- The name of the business where the v (If a residential well, ckip 4a; complete 4b, well own		11.	DATE WELL ABANDONED	7/29/09
FACILITY ID #(if applicable)		l.l		LL WAS ABANDONED IN ACCORDANCE
NAME OF FACILITY CAMP JO	SHOSON	WITH	I 15A NCAC 2C, WELL CONSTRUCT	TION STANDARDS, AND THAT A COPY OF
STREET ADDRESS JACK SCHOOL CO N C City or Town State		THIS	RECORD HAS BEEN PROVIDED TO	THE WELL OWNER.
JACKSCHULLE NC	·	<u></u>		NTPACTOR DATE
City or Town State	Zip Code	SIGN	ATURE OF CERTIFIED WELL CO	INTRACTOR DATE
O. CONTACT PERSON/WELL OWNER:				
NAME KERT HALLROSG C			ATURE OF PRIVATE WELL OWN	
STREET ADDRESS 4824 PARK	CHIS RS ANG YALL	in acc	ordance with 15A NCAC 2C .0113.)	l who <u>personally</u> abandons his/her residential well
CHARCUTTE NC City or Town State	Zin Code	PRIN	M THOMA S TED NAME OF PERSON ABANDO	NING THE WELL
(704) - 775-2980 Area code - Phone number	_			



1. WELL CONTRACTOR:		5.	WELL DETAILS:
TIM THOMAS			a. Total Depth: 17 ft. Diameter: 1 in.
Well Contractor (Individual) Name			b. Water Level (Below Measuring Point): ft.
SAE DACCO TNC. Well Contractor Company Name			Measuring point is ft. above land surface.
STREET ADDRESS 9088 NO	ORTHFIELD DR	6.	CASING: Length Diameter
FORT MILL SC City or Town State	29707 Zip Code		a. Casing Depth (if known): ft. in. b. Casing Removed: ft. in.
Area code - Phone number		7.	D 11 16
z. WELL INFORMATION:			(Amount of 65%-75% calcium hypochlorite used)
SITE WELL ID # (if applicable)	<u>v - 18</u>	8.	SEALING MATERIAL:
STATE WELL PERMIT # (if applicable)			Neat Cement Sand Cement
COUNTY WELL PERMIT # (if applicable)			Cementlb.Cementlb.Watergal.Watergal.
DWQ or OTHER PERMIT # (if applicable)_			<u>Bentonite</u>
WELL USE (Circle applicable use): (Monite Municipal/Public Industrial/Commer Recovery Injection Irrigation Other (list use)	cial Agricultural		Bentonite lb. Type: Slurry Pellets gal.
			<u>Other</u>
3. WELL LOCATION:	X1.4.4.0°		Type material
COUNTY CNSLOW QUADRANGLE			Amount
NEAREST TOWN: <u>JACKSONVIC</u> CAMP JOHNSON	CE, NC		Amount
(Street/Road Name, Number, Community, Subdivis	sion, Lot No., Parcel, Zip Code)	9.	EXPLAIN METHOD OF EMPLACEMENT OF MATERIAL:
TOPOGRAPHIC / LAND SETTING:			BORCHOLE WAS FILLED WITH CHIPS AFTER
			WELL WAS ZEMWED
LATITUDE	May be in degrees,	Ħ	
	minutes, seconds, or in a decimal format	10	WELL DIAGRAM: Draw a detailed sketch of the well on the back of this
LONGITUDE CRS	Tananahis	10.	form showing total depth, depth and diameter of screens (if any) remaining
Latitude/longitude source: GPS (Location of well must be shown on a U attached to this form if not using GPS.	SGS topo map and		in the well, gravel interval, intervals of casing perforations, and depths and types of fill materials used.
a. FACILITY- The name of the business where the w (If a residential well, ckip 4a; complete 4b, well owner	· · · · · · · · · · · · · · · · · · ·	11.	DATE WELL ABANDONED 7/29/09
FACILITY ID #(if applicable)		I DO	HEREBY CERTIFY THAT THIS WELL WAS ABANDONED IN ACCORDANCE
NAME OF FACILITY CAMP JC	HWSCW	WIT	H 15A NCAC 2C, WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF RECORD HAS BEEN PROVIDED TO THE WELL OWNER.
STREET ADDRESS		'''	
TAUKSCHULLE NC City or Town State	Zip Code	SIG	NATURE OF CERTIFIED WELL CONTRACTOR DATE
b. CONTACT PERSON/WELL OWNER:	- -		
NAME KERI HAURGE C	HZM HICC		NATURE OF PRIVATE WELL OWNER ABANDONING THE WELL DATE
STREET ADDRESS 4824 PARKL			private well owner must be an individual who <u>personally</u> abandons his/her residential well cordance with ISA NCAC 2C .0113.)
CHARLOTT NC City or Town State		7	THOMAS
City or Town State	Zip Code	PRI	NTED NAME OF PERSON ABANDONING THE WELL
(704) - 975 - 2980	-		



1. WELL CONTRACTOR:	5. WELL DETAILS:
TIM THOMAS Well Contractor (Individual) Name	a. Total Depth: 18 ft. Diameter: 1 in.
	b. Water Level (Below Measuring Point): ft.
SAE DACCO, TNC. Well Contractor Company Name	Measuring point is ft. above land surface.
STREET ADDRESS GORREN NORTHFIELD DR	6. CASING: Length Diameter
FORT MILL SC 29707 City or Town State Zip Code (83) - 548 2180	a. Casing Depth (if known): b. Casing Removed: ft. in.
Area code - Phone number	7. DISINFECTION: 0.1615
2. WELL INFORMATION:	(Amount of 65%-75% calcium hypochlorite used)
SITE WELL ID # (if applicable) 703 - 19	8. SEALING MATERIAL:
STATE WELL PERMIT # (if applicable)	Neat Cement Sand Cement
COUNTY WELL PERMIT # (if applicable)	Cement lb. Cement lb. Water gal.
DWQ or OTHER PERMIT # (if applicable)	Bentonite
WELL USE (Circle applicable use): Monitoring Residential Municipal/Public Industrial/Commercial Agricultural Recovery Injection Irrigation Other (list use)	Bentonite lb. Type: Slurry Pellets X Water 0.74 gal.
	Other
3. WELL LOCATION: COUNTY CASLOW QUADRANGLE NAME	Type material
NEAREST TOWN: TACKSONVICE NC	Amount
CAMP JOHNSON	
(Street/Road Name, Number, Community, Subdivision, Lot No., Parcel, Zip Code)	9. EXPLAIN METHOD OF EMPLACEMENT OF MATERIAL:
TOPOGRAPHIC / LAND SETTING:	ROPEHOLE WAS FILLED WITH CHIPS AFTER
Slope Valley Flat Ridge Other(Circle appropriate setting)	well was zeroued
May be in degrees,	
LATITUDE minutes, seconds, or in a decimal format	
LONGITUDE	10. WELL DIAGRAM: Draw a detailed sketch of the well on the back of this
Latitude/longitude source: GPS Topographic map (Location of well must be shown on a USGS topo map and attached to this form if not using GPS.)	form showing total depth, depth and diameter of screens (if any) remaining in the well, gravel interval, intervals of casing perforations, and depths and types of fill materials used.
a. FACILITY- The name of the business where the well is located. Complete 4a and 4b. (If a residential well, .kip 4a; complete 4b, well owner information only.)	11. DATE WELL ABANDONED 7/29/09
FACILITY ID #(if applicable)	I DO HEREBY CERTIFY THAT THIS WELL WAS ABANDONED IN ACCORDANCE
NAME OF FACILITY CAMP JOHNSON	WITH 15A NCAC 2C, WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF THIS RECORD HAS BEEN PROVIDED TO THE WELL OWNER.
STREET ADDRESS	
City or Town State Zip Code	$\frac{ (C/(3/C)^2)}{\text{SIGNATURE OF CERTIFIED WELL CONTRACTOR}}$
b. CONTACT PERSON/WELL OWNER:	
NAME KERT HAWRERS CHEMHICE	SIGNATURE OF PRIVATE WELL OWNER ABANDONING THE WELL DATE
STREET ADDRESS 4824 PARKWAY PLAZA BLUD	(The private well owner must be an individual who <u>oersonaliv</u> abandons his/her residential well in accordance with 15A NCAC 2C .0113.)
CHARLOTTE NC City or Town State Zip Code	TIM THOMA S PRINTED NAME OF PERSON ABANDONING THE WELL
704) - 77529 8 C	



	<u> </u>			
1. WELL CONTRACTOR:		5.	WELL DETAILS:	· ·
TIM THOMAS		-	a. Total Depth: 18	ft. Diameter: 1 in.
Well Contractor (Individual) Name			b. Water Level (Below Measuri	
Well Contractor Company Name			Measuring point is	
STREET ADDRESS 9088 N	ORTHFIELD DR	6.	CASING:	Length Diameter
FORT MILL SC City or Town State	29707 Zip Code		a. Casing Depth (if known): b. Casing Removed:	ftininin.
Area code - Phone number		7.	DISINFECTION: 0.1	
2. WELL INFORMATION:]]	(Amount of 65%-75% calcium	
SITE WELL ID # (if applicable)	<u> </u>	. 8.	SEALING MATERIAL:	
STATE WELL PERMIT # (if applicable)		-	Neat Cement	Sand Cement
COUNTY WELL PERMIT # (if applicable)			Cement lb. Water gal.	Cement lb. Water gal.
DWQ or OTHER PERMIT # (if applicable)	<u> </u>	.	Bentonite	
WELL USE (Circle applicable use): Monit Municipal/Public Industrial/Commer Recovery Injection Irrigation Other (list use)	rcial Agricultural		Bentonite lb. Type: Slurry Pellets X Water 0 , 7 9 ga	I.
			<u>Other</u>	
3. WELL LOCATION: COUNTY CNSCOLD QUADRANGLE	NAME		Type material	
NEAREST TOWN: JACKSONVIC				·
CAMP JOHNSON				
(Street/Road Name, Number, Community, Subdivi	ision. Lot No., Parcel, Zip Code)	9.	EXPLAIN METHOD OF FM	PLACEMENT OF MATERIAL:
TOPOGRAPHIC / LAND SETTING:	,,			LED WITH CHIPS AFTER
Slope Valley Flat Ridge Other_ (Circle appropriate setting)				eO
LATITUDE	May be in degrees,			
	minutes, seconds, or in a decimal format		WELL BLACK AND A	
Latitude/longitude source: GPS	Topographic map	10.		tailed sketch of the well on the back of this and diameter of screens (if any) remaining
Latitude/longitude source: GPS (Location of well must be shown on a L attached to this form if not using GPS	ISGS topo map and			vals of casing perforations, and depths and
a. FACILITY-The name of the business where the w (If a residential well, skip 4a; complete 4b, well own]] 11.	DATE WELL ABANDONED_	7/29/09
FACILITY ID #(if applicable)		IDO	HEREBY CERTIFY THAT THIS WE	LL WAS ABANDONED IN ACCORDANCE
NAME OF FACILITY CAMP JE	54105CV		I ISA NCAC 2C, WELL CONSTRUC RECORD HAS BEEN PROVIDED TO	TION STANDARDS, AND THAT A COPY OF
STREET ADDRESS			ICCORD HAS BEEN FROVIDED TO	
STREET ADDRESS IV ACIC SCIENCIC CONC. City or Town State	Zip Code	SIGN	ATURE OF CERTIFIED WELL CO	ONTRACTOR DATE
. CONTACT PERSON/WELL OWNER:				
NAME KERT HAUREDE, C	HZMHIC	1 1		ER ABANDONING THE WELL DATE
STREET ADDRESS 4824 PACK	CAY PLAZA BLUD		orivate well owner must be an individua ordance with 15A NCAC 2C .0113.)	il who <u>personally</u> abandons his/her residential well
CHARLUTTE NC City or Town State		7 / PDIN	M THOMAS TED NAME OF PERSON ABANDO	DNING THE WELL
			TED HAME OF TERSON ABANDO	MINO THE WELL
(704)- 975-7980	-			



well contractor certification # 2012

The state of the s				
1. WELL CONTRACTOR:		5.	WELL DETAILS:	,
TIM THOMAS			a. Total Depth: 20	t. Diameter: <u>I</u> in.
Well Contractor (Individual) Name			b. Water Level (Below Measuring	
Well Contractor Company Name			Measuring point is	ft. above land surface.
STREET ADDRESS 9088 N		6.	CASING:	Length Diameter
FORT MILL SC. City or Town State	29707 Zip Codc		a. Casing Depth (if known): b. Casing Removed:	ft in in in.
Area code - Phone number		7.	DISINFECTION: 0,10	016
2. WELL INFORMATION:			(Amount of 65%-75% calcium	hypochlorite used)
SITE WELL ID # (if applicable) / (<u>v - U</u>	8.	SEALING MATERIAL:	
STATE WELL PERMIT # (if applicable)			Neat Cement	Sand Cement
COUNTY WELL PERMIT # (if applicable)	111111111111111111111111111111111111111		Cement lb. Water gal.	Cementlb. Watergal.
DWQ or OTHER PERMIT # (if applicable)			<u>Bentonite</u>	
WELL USE (Circle applicable use): Monit Municipal/Public Industrial/Commer Recovery Injection Irrigation Other (list use)	cial Agricultural		Bentonite 6 lb. Type: Slurry Peliets X Water 0, 82 gai	i.
	· ·		<u>Other</u>	
3. WELL LOCATION: COUNTY CNS LOW QUADRANGLE);		Type material	
NEAREST TOWN: TACK SONVICE			Amount	
CAMP JOHNSON	<u>C. / C</u>			
(Street/Road Name, Number, Community, Subdivi	sion Lot No., Parcel Zip Code)	9	EXPLAIN METHOD OF FM	PLACEMENT OF MATERIAL:
TOPOGRAPHIC / LAND SETTING:		"	= :	LEO WITH CHIPS AFTER
_			well was zenou	EO
	May be in degrees,			
LATITUDE	minutes, seconds, or in a decimal format		WELL DIAGRAM Day of	seiled about afabra well as the big Cold
LONGITUDE GPS	T	10.		tailed sketch of the well on the back of this and diameter of screens (if any) remaining
Latitude/longitude source: GPS (Location of well must be shown on a U attached to this form if not using GPS	ISGS topo map and			vals of casing perforations, and depths and
a. FACILITY- The name of the business where the w (If a residential well, skip 4a; complete 4b, well own	•	11.	DATE WELL ABANDONED_	7/29/09
FACILITY ID #(if applicable)				LL WAS ABANDONED IN ACCORDANCE
NAME OF FACILITY CAMP JO			H 15A NCAC 2C, WELL CONSTRUC S RECORD HAS BEEN PROVIDED T	TION STANDARDS, AND THAT A COPY OF OTHE WELL OWNER.
STREET ADDRESS				who los
TACK SCHOOLER NC	Zip Code	SIGN	NATURE OF CERTIFIED WELL CO	ONTRACTOR DATE
b. CONTACT PERSON/WELL OWNER:	,			
NAME K-UZI HAURUZG C	HZM HILL			NER ABANDONING THE WELL DATE
STREET ADDRESS 4824 MELL	JAY PLAZA BLUD		private well owner must be an individual cordance with 15A NCAC 2C .0113.)	al who <u>personally</u> abandons his/her residential well
		1	IM 71-10MA S VIED NAME OF PERSON ABANDO	
City or Town State	Zip Code	PRIN	TED NAME OF PERSON ABANDO	DNING THE WELL
(704)- 975-298C				
Area code - Phone number	-			



North Carolina Department of Environment and Natural Resources- Division of Water Quality

	TRACTOR CERTIF	CALIO	5N#
1. WELL CONTRACTOR:		5.	. WELL DETAILS:
TIM THOMAS			a. Total Depth; / 5 ft. Diameter: 1 in.
Well Contractor (Individual) Name			b. Water Level (Below Measuring Point): ft.
SAEDACCO, INC.			Measuring point is ft. above land surface.
Well Contractor Company Name			
STREET ADDRESS 9088 N		6.	c. CASING: Length Diameter
FORT MILL SC City of Town State	297c7		a. Casing Depth (if known): ft. ft. in.
City of Town State $(83)_{-}$ $548-2180$	Zip Code		b. Casing Removed: ft. in.
Area code - Phone number		7.	DISINFECTION: 0,16 16
2. WELL INFORMATION:			(Amount of 65%-75% calcium hypochlorite used)
SITE WELL ID # (if applicable)	<u> 25 – 0.</u>	. 8.	
CTATE WELL BOOMER 4/20 NO LINE			Neat Cement Sand Cement
STATE WELL PERMIT # (if applicable)		·	
COUNTY WELL PERMIT # (if applicable)		-	Cement lb. Cement lb. Water gal. Water gal.
DWQ or OTHER PERMIT # (if applicable)		.	Bentonite
WELL USE (Circle applicable use): Monito Municipal/Public Industrial/Commer		- []	Bentonite 4 lb.
Municipal/Public Industrial/Commer Recovery Injection Irrigation	cial Agricultural		Type: Slurry Pellets
Other (list use)			Water 0,62 gal.
A WELL LOCATION			<u>Other</u>
3. WELL LOCATION: COUNTY CNS LOW QUADRANGLE:	NI A N #470		Type material
NEAREST TOWN: JACKSONVIL			Amount
CAMP JOHNSON	<u></u>		
(Street/Road Name, Number, Community, Subdivis	sion Lot No. Parcel Zin Code)	9	EXPLAIN METHOD OF EMPLACEMENT OF MATERIAL:
TOPOGRAPHIC / LAND SETTING:	ton, bot No., I alter, bip code,	"	BORCHOLE WAS FILLED WITH CHIPS AFTER
			WELL WAS ZEMOVED
(Circle appropriate setting)			
LATITUDE	May be in degrees,		
	minutes, seconds, or in a decimal format	10.	. WELL DIAGRAM: Draw a detailed sketch of the well on the back of this
LONGITUDE GPS	Tenegraphic man	10.	form showing total depth, depth and diameter of screens (if any) remaining
(Location of well must be shown on a U.	Topographic map SGS topo map and		in the well, gravei interval, intervals of casing perforations, and depths and
attached to this form if not using GPS.			types of fill materials used.
a. FACILITY- The name of the business where the w (If a residential well, akip 4a; complete 4b, well owner	r information only.)	11.	DATE WELL ABANDONED 7/29/09
FACILITY ID #(if applicable)		IDO	D HEREBY CERTIFY THAT THIS WELL WAS ABANDONED IN ACCORDANCE
NAME OF FACILITY CAMP JO	H0500	WITI	TH 15A NCAC 2C, WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF S RECORD HAS BEEN PROVIDED TO THE WELL OWNER.
STREET ADDRESS		Ims	
City or Town State	Zin Code	SIGN	nature of Certified Well Contractor DATE
b. CONTACT PERSON/WELL OWNER:	Zip Code		DATE
NAME KERT HAURGE CI	42 in HILL	900	NATURE OF PRIVATE WELL OWNER ABANDONING THE WELL DATE
STREET ADDRESS 4824 PARKL		(The	private well owner must be an individual who <u>personally</u> abandons his/her residential well scordance with 15A NCAC 2C .0113.)
(100) 100	<u>, 1 -1, Cl 300</u> 0	1 1	·
CHARLOTTE NC City or Town State 7	Zip Code	PRIN	THOMA S NTED NAME OF PERSON ABANDONING THE WELL
(704) - 775 - 7980) Area code - Phone number			



North Carolina Department of Environment and Natural Resources- Division of Water Quality

well contractor certification # 20/2

WELLCON	TRACIOR CERTIFIC	CATIO	# <u>2012</u>	
1. WELL CONTRACTOR:		5.	WELL DETAILS:	
TIM THOMAS			a. Total Depth: 18 ft.	Diameter: 1 in.
Well Contractor (Individual) Name			b. Water Level (Below Measuring	
SAEDACCO, TNC. Well Contractor Company Name			Measuring point is	ft. above land surface.
STREET ADDRESS 9088 NO	OPTHFIELD DR	6.	CASING:	Length Diameter
FORT MILL SC City or Town State City or Town State	29707 Zip Code		a. Casing Depth (if known): b. Casing Removed:	ftinftin.
Area code - Phone number		7.	DISINFECTION: 0,16	16
WELL INCODMATION.			(Amount of 65%-75% calcium h	
2. WELL INFORMATION: SITE WELL ID # (if applicable)	23 – ئ	8.	SEALING MATERIAL:	
STATE WELL PERMIT # (if applicable)			Neat Cement	Sand Cement
COUNTY WELL PERMIT # (if applicable)	_ :		Cement lb. Water gal.	Cementlb. Watergal.
DWQ or OTHER PERMIT # (if applicable)			<u>Bentonite</u>	
WELL USE (Circle applicable use): Monite Municipal/Public Industrial/Commer Recovery Injection Irrigation Other (list use)	cial Agricultural		Bentonite lb. Type: Slurry Pellets \(\) Water 0.7 \(\) gal.	
1 WELL LOCATION			<u>Other</u>	
3. WELL LOCATION: COUNTY CNS LOW QUADRANGLE	BLAREC		Type material	
NEAREST TOWN: TACK SONVICE			Amount	
CAMP JOHNSON	10, 100	11		
(Street/Road Name, Number, Community, Subdivi	sion Lot No. Parcel Zin Code)	9.	EXPLAIN METHOD OF EMPI	I ACEMENT OF MATERIAL.
TOPOGRAPHIC / LAND SETTING:	Holl. Dot 16th, I albeit, Dip Code)	"		ED WITH CHIPS AFTER
			WELL WAS ZEMOVE	
((enote appropriate setting)				
LATITUDE	May be in degrees, minutes, seconds, or in a decimal format			
LONGITUDE		10.		iled sketch of the well on the back of this
Latitude/longitude source: GPS (Location of well must be shown on a L attached to this form if not using GPS.				and diameter of screens (if any) remaining als of casing perforations, and depths and
a. FACILITY- The name of the business where the w (If a residential well, skip 4a; complete 4b, well own		11.	DATE WELL ABANDONED	7/29/09
FACILITY ID #(if applicable)				L WAS ABANDONED IN ACCORDANCE
NAME OF FACILITY CAMP JC			I 15A NCAC 2C, WELL CONSTRUCTI RECORD HAS BEEN PROVIDED TO	ION STANDARDS, AND THAT A COPY OF THE WELL OWNER.
STREET ADDRESS				w/13/09
TACK SCHOOLER NC	Zip Code	SIGN	ATURE OF CERTIFIED WELL CON	NTRACTOR DATE
b. CONTACT PERSON/WELL OWNER:				
NAME K-CRI HAUREDE C				R ABANDONING THE WELL DATE
STREET ADDRESS 4824 PARK		in acc	ordance with 15A NCAC 2C .0113.)	who personally abandons his/her residential well
CHARCOTTE NC City or Town State		1 7	M 7HOMA S TED NAME OF PERSON ABANDON	VINC THE WELL
City or Town State	Zip Code	PRIN	TED NAME OF PERSON ABANDON	NING THE WELL
(704)- 975-2980	_			
Area code - Phone number	-]		



WELL CON	TRACTOR CERTIFIC	CATION	N# 2012		
1. WELL CONTRACTOR:		5.	WELL DETAILS: a. Total Depth: 19	6 Diameter 1	in
Well Contractor (Individual) Name			b. Water Level (Below Measuri		
SAE DACCO TNC. Well Contractor Company Name			Measuring point is		
STREET ADDRESS 9088 NO	DR74FIELD DR	6.	CASING:	Length D	Diameter
FORT MILL SC City or Town State	29707		a. Casing Depth (if known):	ft.	in.
(893) 548 Z(80	Zip Code		b. Casing Removed:	ft.	
Area code - Phone number		7.	DISINFECTION: O.16	, (5	
2. WELL INFORMATION:	. 2/1		(Amount of 65%-75% calcium	hypochlorite used)	
SITE WELL ID # (if applicable)	<u> </u>	8.	SEALING MATERIAL:		
STATE WELL PERMIT # (if applicable)			Neat Cement	Sand Cement	•
COUNTY WELL PERMIT # (if applicable)_			Cementlb. Watergal.	Cement Water	
DWQ or OTHER PERMIT # (if applicable)_			Bentonite	·	
WELL USE (Circle applicable use): (Monito Municipal/Public Industrial/Commer Recovery Injection Irrigation	ring Residential		Bentonitelb. Type: SlurryPellets_X Water	1	
Other (list use)				1.	
3. WELL LOCATION:	•		<u>Other</u>		
COUNTY CNSLOW QUADRANGLE	NAME		Type material	 	
NEAREST TOWN: TAULSONVIL	ENC		Amount		
_ CAMP JOHNSON					
(Street/Road Name, Number, Community, Subdivis	ion. Lot No., Parcel, Zip Code)	9.	EXPLAIN METHOD OF EM		
TOPOGRAPHIC / LAND SETTING: Slope Valley Flat Ridge Other			BORCHOLE WAS FILL WELL WAS RÉMOU		13 ALTER
(Circle appropriate setting)			WELL BOXY PERFORM	<u></u>	
LATITUDE	May be in degrees, minutes, seconds, or in a				
LONGITUDE	decimal format	10.	WELL DIAGRAM: Draw a de		
Latitude/longitude source: GPS (Location of well must be shown on a U. attached to this form if not using GPS.			form showing total depth, depth in the well, gravel interval, inter types of fill materials used.	,	-
4a. FACILITY- The name of the business where the well (If a residential well, 2kip 4a; complete 4b, well owner)	r information only.)	11.	DATE WELL ABANDONED_	7/29/0	9
FACILITY ID #(if applicable)			HEREBY CERTIFY THAT THIS WE		
NAME OF FACILITY CAMP TO	F102 C10		I 15A NCAC 2C, WELL CONSTRUC RECORD HAS BEEN PROVIDED T		
STREET ADDRESS					who 109
City or Town State	Zip Code	SIGN.	ATURE OF CERTIFIED WELL CO	ONTRACTOR	DATE DATE
4b. CONTACT PERSON/WELL OWNER:					
NAME KURT HAURURG CI	12m HICC	1	ATURE OF PRIVATE WELL OW		
STREET ADDRESS 4824 PARKL	LAY PLAZA BLUD	in acco	orivate well owner must be an individu ordance with 15A NCAC 2C .0113.)		ns his/her residential well
City or Town State 2	Tip Code	PRIN	M 7HOMA S TED NAME OF PERSON ABANDO	ONING THE WELL	*
(704) - 775 - 2980)					



WELL CON	TRACTOR CERTIFIC	CATION# 2012	
1. WELL CONTRACTOR:		5. WELL DETAILS:	
TIM THOMAS		a. Total Depth: 16 ft. Diameter: 1 in.	
Well Contractor (Individual) Name		b. Water Level (Below Measuring Point): ft.	
Well Contractor Company Name		Measuring point is fi. above land surface.	
STREET ADDRESS 9088 NO		6. CASING: Length Diameter	
FORT MILL SC City or Town State	29707	a. Casing Depth (if known): ft ft in.	
City or Town State	Zip Code	b. Casing Removed: ft. in.	
Area code - Phone number		7. disinfection: 0,1615	
2. WELL INFORMATION:	_	(Amount of 65%-75% calcium hypochlorite used)	
SITE WELL ID # (if applicable)	<u>0 - 25 - 0</u>	8. SEALING MATERIAL:	
STATE WELL PERMIT # (if applicable)		Neat Cement Sand Cement	
COUNTY WELL PERMIT # (if applicable)_		Cement lb. Cement lb. Water gal. Water gal.	
DWQ or OTHER PERMIT # (if applicable)_		Bentonite	
WELL USE (Circle applicable use): (Monito	ring Residential	Bentonite51b.	
Municipal/Public Industrial/Commerc Recovery Injection Irrigation	ial Agricultural	Type: Slurry_ Pellets 🔨	
Other (list use)		Water O, G, gal.	
3. WELL LOCATION:		Other	
COUNTY CASE COLD QUADRANGLE N	iamp	Type material	
NEAREST TOWN: JACKSONVILL		Amount	
CAMP JOHNSON			
(Street/Road Name, Number, Community, Subdivisi	ion, Lot No., Parcel, Zip Code)	9. EXPLAIN METHOD OF EMPLACEMENT OF MATERIAL	,:
TOPOGRAPHIC / LAND SETTING:		ROPEHOLE WAS FILLED WITH CHIPS AFTE	R
Slope Valley Flat Ridge Other (Circle appropriate setting)	<u> </u>	WELL WAS ZEMWED	
Γ	No. 1. No. 1.		
LATITUDE	May be in degrees, minutes, seconds, or in a		
LONGITUDE	decimal format	10. WELL DIAGRAM: Draw a detailed sketch of the well on the bar	
Latitude/longitude source: GPS (Location of well must be shown on a US		form showing total depth, depth and diameter of screens (if any) r in the well, gravel interval, intervals of casing perforations, and de	_
attached to this form if not using GPS.)		types of fill materials used.	•
4a. FACILITY-The name of the business where the we (If a residential well, ckip 4a; complete 4b, well owner		11. DATE WELL ABANDONED 7/29/09	
FACILITY ID #(if applicable) NAME OF FACILITY CAMP JO		I DO HEREBY CERTIFY THAT THIS WELL WAS ABANDONED IN ACCORD	DANCE
		WITH 15A NCAC 2C, WELL CONSTRUCTION STANDARDS, AND THAT A THIS RECORD HAS BEEN PROVIDED TO THE WELL OWNER.	
STREET ADDRESS		,	10.5
STREET ADDRESS TACK SCHOOLEGE AS C City or Town State	Zip Code	signature of certified well contractor D.	ATE
4b. CONTACT PERSON/WELL OWNER:			
NAME KERI HAURORE CH	12m HICC	SIGNATURE OF PRIVATE WELL OWNER ABANDONING THE WELL	DATE
STREET ADDRESS 4824 PARKLO	COUSE OF FULL ACT	(The private well owner must be an individual who <u>personally</u> abandons his/her resi in accordance with 15A NCAC 2C .0113.)	
CHARCOTTE NC City or Town State Z		TIM THOMAS PRINTED NAME OF PERSON ABANDONING THE WELL	
City or Town State Z	ip Code	PRINTED NAME OF PERSON ABANDONING THE WELL	
(704)- 975-2980			



WELL ABANDONMENT RECORD

North Carolina Department of Environment and Natural Resources- Division of Water Quality

1. WELL CONTRACTOR:		5.	WELL DETAILS:
TIM THOMAS			a. Total Depth: 16 ft. Diameter: 1 in.
Well Contractor (Individual) Name			b. Water Level (Below Measuring Point): ft.
SAEDACCO, TNC. Well Contractor Company Name			Measuring point is ft. above land surface.
STREET ADDRESS 9088 N		6.	CASING: Length Diameter
FORT MILL SC City or Town State	29707 Zip Code		a. Casing Depth (if known): ft. ft. in. b. Casing Removed: ft. in.
Area code - Phone number		7.	011 11
2. WELL INFORMATION:			(Amount of 65%-75% calcium hypochlorite used)
SITE WELL ID # (if applicable)	<u>v - 76</u>	8.	SEALING MATERIAL:
STATE WELL PERMIT # (if applicable)	<u>, , , , , , , , , , , , , , , , , , , </u>		Neat'Cement Sand Cement
COUNTY WELL PERMIT # (if applicable)			Cement lb. Cement lb. Water gal. Water gal.
DWQ or OTHER PERMIT # (if applicable)_			Bentonite
WELL USE (Circle applicable use): Monit Municipal/Public Industrial/Commer Recovery Injection Irrigation Other (list use)	cial Agricultural		Bentonite lb. Type: Slurry Pellets X Water gai.
			<u>Other</u>
3. WELL LOCATION:	NAME		Type material
COUNTY COSLOW QUADRANGLE			Amount
NEAREST TOWN: TACKSONVICE CAMP JOHNSON	CE NC		Amount
(Street/Road Name, Number, Community, Subdivi	sion, Lot No., Parcel, Zip Code)	9.	EXPLAIN METHOD OF EMPLACEMENT OF MATERIAL:
TOPOGRAPHIC / LAND SETTING:			BORCHOLE WAS FILLED WITH CHIPS AFTER
			well may removed
v contrar Inch	May be in degrees,		
LATITUDE	minutes, seconds, or in a decimal format	1	White Programs Books 2 Library Col. 19 July 1 Col.
LONGITUDE		10.	WELL DIAGRAM: Draw a detailed sketch of the well on the back of this form showing total depth, depth and diameter of screens (if any) remaining
Latitude/longitude source: GPS (Location of well must be shown on a L attached to this form if not using GPS			in the well, gravel interval, intervals of casing perforations, and depths and types of fill materials used.
a. FACILITY- The name of the business where the w (If a residential well, skip 4a; complete 4b, well own		11.	DATE WELL ABANDONED 7/29/09
FACILITY ID #(if applicable)			HEREBY CERTIFY THAT THIS WELL WAS ABANDONED IN ACCORDANCE
NAME OF FACILITY CAMP JO	1022CH		H 15A NCAC 2C, WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF S RECORD HAS BEEN PROVIDED TO THE WELL OWNER.
STREET ADDRESS			
TACK SCHOOLER &C	Zip Code	SIGI	NATURE OF CERTIFIED WELL CONTRACTOR DATE
b. CONTACT PERSON/WELL OWNER:	·		
NAME KERI HALRURG C	HZMHICL		NATURE OF PRIVATE WELL OWNER ABANDONING THE WELL DATE
STREET ADDRESS 4824 PACKE	CONS OF ALCO		private well owner must be an individual who personally abandons his/her residential well cordance with 15A NCAC 2C .0113.)
CHARLUTTE NC City or Town State		7	THONA S
		FRIF	TIED HAME OF PERSON ADARDONING THE WEDE
(704)- 775-298C) Area code - Phone number	-		



WELL ABANDONMENT RECORD

North Carolina Department of Environment and Natural Resources- Division of Water Quality

				
1. WELL CONTRACTOR:		5.	WELL DETAILS:	
TIM THOMAS			a. Total Depth: 18	ft. Diameter: 1 in.
Well Contractor (Individual) Name			b. Water Level (Below Measuri	
SAE DACCO, TNC. Well Contractor Company Name			Measuring point is	
STREET ADDRESS 9088 N	ORTHFIELD DR	6.	CASING:	Length Diameter
FORT MILL SC City or Town State	29707 Zip Code		a. Casing Depth (if known): b. Casing Removed:	ft in.
(803) - 548 2(80) Area code - Phone number		7.	DISINFECTION:	
. WELL INFORMATION:			(Amount of 65%-75% calcium	
SITE WELL ID # (if applicable)	w - 27	. 8.	SEALING MATERIAL:	
STATE WELL PERMIT # (if applicable)		. []	Neat Cement	Sand Cement
COUNTY WELL PERMIT # (if applicable)			Cement lb. Water gal.	Cementlb. Watergal.
DWQ or OTHER PERMIT # (if applicable)			Bentonite	•
WELL USE (Circle applicable use): Monit Municipal/Public Industrial/Comme Recovery Injection Irrigation Other (list use)	rcial Agricultural		Bentonite lb. Type: Slurry Pellets X Water 0.7 4 ga	1.
			<u>Other</u>	
3. WELL LOCATION:			Type material	
COUNTY CNSLOW QUADRANGLE	<u> </u>			
NEAREST TOWN: JACKSONVILL CAMP JOHNSON	CE, NC		Amount	
(Street/Road Name, Number, Community, Subdiv.	ision, Lot No., Parcel, Zip Code)	9.	EXPLAIN METHOD OF EM	PLACEMENT OF MATERIAL:
TOPOGRAPHIC / LAND SETTING:				LLED WITH CHIPS AFTER
Slope Valley Flat Ridge Other (Circle appropriate setting)			WELL WAS ZEMOU	<u> </u>
LATITUDE	May be in degrees,			
LONGITUDE	minutes, seconds, or in a decimal format	10.	WELL DIAGRAM: Draw a de	tailed sketch of the well on the back of this
Latitude/longitude source: GPS (Location of well must be shown on a U attached to this form if not using GPS			form showing total depth, depth	n and diameter of screens (if any) remaining rvals of casing perforations, and depths and
a. FACILITY- The name of the business where the valled residential well, skip 4a; complete 4b, well own		11.	DATE WELL ABANDONED_	7/29/09
FACILITY ID #(if applicable)		11,00	HEDERY CERTIEV THAT THIS WE	ELL WAS ABANDONED IN ACCORDANCE
NAME OF FACILITY CAMP JO	<u> </u>	WITH	ł 15A NCAC 2C, WELL CONSTRUC	TION STANDARDS, AND THAT A COPY OF
STREET ADDRESS		THIS	RECORD HAS BEEN PROVIDED T	O THE WELL OWNER.
TACK SOLUCION NC City or Town State				10/13/0°
	Zip Code	SIGN	ATURE OF CERTIFIED WELL CO	ONTRACTOR DATE
o. CONTACT PERSON/WELL OWNER:				
NAME K-CIZI 1-laurize, C			ATURE OF PRIVATE WELL OW!	NER ABANDONING THE WELL DATE al who personally abandons his/her residential well
STREET ADDRESS 4824 PARKE		in acc	ordance with 15A NCAC 2C .0113.)	
CHARCOTTE NC City or Town State	Zip Code	PRIN	M 714091A S TED NAME OF PERSON ABANDO	ONING THE WELL
(704) - 975 - 2980	aura.	Π		



1. WELL CONTRACTOR:

TIM THOMAS
Well Contractor (Individual) Name

FORT MILL
City or Town S

2. WELL INFORMATION:

Recovery

LATITUDE

LONGITUDE

Other (list use) _

3. WELL LOCATION:

(843) 548 ZIBC

SITE WELL ID # (if applicable)

STATE WELL PERMIT # (if applicable)

COUNTY WELL PERMIT # (if applicable)

DWQ or OTHER PERMIT # (if applicable)

WELL USE (Circle applicable use): (Monitoring)

Municipal/Public Industrial/Commercial

Injection Irrigation

COUNTY CNSCOLD QUADRANGLE NAME

CAMP JOHNSON

TOPOGRAPHIC / LAND SETTING: Slope Valley Flat Ridge Other_ (Circle appropriate setting)

Latitude/longitude source: GPS

JACKSCHURCE NC

4b. CONTACT PERSON/WELL OWNER:

CHARCOTT NC
City or Town State

(704)- 975-2980

Area code - Phone number

FACILITY ID #(if applicable)

STREET ADDRESS

City or Town

attached to this form if not using GPS.)

NEAREST TOWN: TACKSONVICE NC

(Street/Road Name, Number, Community, Subdivision, Lot No., Parcel, Zip Code)

(Location of well must be shown on a USGS topo map and

4a. FACILITY- The name of the business where the well is located. Complete 4a and 4b. (If a residential well, 2kip 4a; complete 4b, well owner information only.)

NAME OF FACILITY CAMP JOHNSON

NAME KORT. HAURUZE CHZM HILL STREET ADDRESS 4824 PARKWAY PLAZA BLUD

SAE DACCO, TNC.
Well Contractor Company Name

STREET ADDRESS SCREEN NORTHFIELD DR

State

WELL ABANDONMENT RECORD

North Carolina Department of Environment and Natural Resources- Division of Water Quality

WELL CONTRACTOR CERTIFICATION #

Tw-18

Residential

Agricultural

May be in degrees,

Zip Code

minutes, seconds, or in a decimal format

Topographic map

TIO	N#		
5.	well details: a. Total Depth; 18 b. Water Level (Below Measur Measuring point is	ing Point);	fì.
6.	CASING:	Length	
	a. Casing Depth (if known): b. Casing Removed:	ft.	
7.	DISINFECTION: O.16	, 16	
	(Amount of 65%-75% calcium		i)
8.	SEALING MATERIAL:		
	Neat Coment	Sand Cem	<u>ient</u>
	Cementlb. Watergal.		lb. gal.
	Bentonite		
	Bentonite lb. Type: Slurry Pellets Water 6,74 ga	ı i .	
	<u>Other</u>		
	Type material		
	Amount	•	
9.	EXPLAIN METHOD OF EM BORCHOLE WAS FI WELL WAS ZEMAN	LLED WITH C	
10.	WELL DIAGRAM: Draw a deform showing total depth, depth in the well, gravel interval, intertypes of fill materials used. DATE WELL ABANDONED_	and diameter of s	screens (if any) remaining forations, and depths and
I DO I WITH	HEREBY CERTIFY THAT THIS WI I 15A NCAC 2C, WELL CONSTRUC RECORD HAS BEEN PROVIDED T	ELL WAS ABANDO	NED IN ACCORDANCE S, AND THAT A COPY OF
SIGN	ATURE OF CERTIFIED WELL C	ONTRACTOR	10/13/0°) DATE
(The print acco	ATURE OF PRIVATE WELL OW private well owner must be an individuordance with 15A NCAC 2C .0113.) Milleria S	al who <u>personally</u> ab	andons his/her residential well
	TED NAME OF PERSON ABAND	ONING THE WEL	L



North Carolina Department of Environment and Natural Resources- Division of Water Quality

WELL CONTRACTOR CERTIFIC	CATION# 2012
1. WELL CONTRACTOR:	5. WELL DETAILS:
TIM THOMAS Well Contractor (Individual) Name	a. Total Depth: 16 ft. Diameter: 1 in. b. Water Level (Below Measuring Point): ft.
SAE DACCO, TNC. Well Contractor Company Name	Measuring point is ft. above land surface.
STREET ADDRESS 9088 NORTHFIELD DR	6. CASING: Length Diameter
FORT MILL SC 29707 City or Town State Zip Code	a. Casing Depth (if known): b. Casing Removed: ft. in.
Area code - Phone number	7. DISINFECTION: 0.16 15
	(Amount of 65%-75% calcium hypochlorite used)
2. WELL INFORMATION: SITE WELL ID # (if applicable) 7 \omega - 29	8. SEALING MATERIAL:
STATE WELL PERMIT # (if applicable)	Neat Cement Sand Cement
COUNTY WELL PERMIT # (if applicable)	Cement lb. Cement lb. Water gal. Water gal.
DWQ or OTHER PERMIT # (if applicable)	Bentonite
WELL USE (Circle applicable use): Monitoring Residential Municipal/Public Industrial/Commercial Agricultural Recovery Injection Irrigation	Bentonite lb. Type: Slurry Peliets K
Other (list use)	Water O, 66 gal.
3. WELL LOCATION:	Other
COUNTY CASE CILD QUADRANGLE NAME	Type material
NEAREST TOWN: JACKSONVILLE, NC	Amount
CAMP JOHNSON	
(Street/Road Name, Number, Community, Subdivision, Lot No., Parcel, Zip Code)	9. EXPLAIN METHOD OF EMPLACEMENT OF MATERIAL:
TOPOGRAPHIC / LAND SETTING: Slope Valley Flat Ridge Other (Circle appropriate setting)	BORCHOLE WAS FILLED WITH CHIPS AFTER WELL WAS ZEMWED
LATITUDE May be in degrees,	
LATITUDE minutes, seconds, or in a decimal format	10. WELL DIAGRAM: Draw a detailed sketch of the well on the back of this
Latitude/longitude source: GPS Topographic map (Location of well must be shown on a USGS topo map and attached to this form if not using GPS.)	form showing total depth, depth and diameter of screens (if any) remaining in the well, gravel interval, intervals of casing perforations, and depths and rypes of fill materials used.
FACILITY-The name of the business where the well is located. Complete 4a and 4b, (If a residential well, :kip 4a; complete 4b, well owner information only.)	11. DATE WELL ABANDONED 7/29/09
FACILITY ID #(if applicable)	I DO HEREBY CERTIFY THAT THIS WELL WAS ABANDONED IN ACCORDANCE
NAME OF FACILITY CAMP JOHNSON	WITH 15A NCAC 2C, WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF THIS RECORD HAS BEEN PROVIDED TO THE WELL OWNER.
STREET ADDRESS	1
Ciry or Town State Zip Code	SIGNATURE OF CERTIFIED WELL CONTRACTOR DATE
b. CONTACT PERSON/WELL OWNER:	JAIL SAME SEE SAME SAM
NAME KORT HAUROZE, CHZIN HILL	SIGNATURE OF PRIVATE WELL OWNER ABANDONING THE WELL DATE
STREET ADDRESS 4824 PARKWAY PLAZA BLUD	(The private well owner must be an individual who personally abandons his/her residential well in accordance with 15A NCAC 2C .0113.)
	TIM THOMAS PRINTED NAME OF PERSON ABANDONING THE WELL
CHARLOTTE NC City or Town State Zip Code	PRINTED NAME OF PERSON ABANDONING THE WELL
(704) - 575 - 7980) Area code - Phone number	



North Carolina Department of Environment and Natural Resources- Division of Water Quality

	THE TON CENTIFIC			
1. WELL CONTRACTOR:		5.	WELL DETAILS:	
TIM THOMAS			a. Total Depth: 12 ft. Diameter: 1 in	п.
Well Contractor (Individual) Name			b. Water Level (Below Measuring Point): ft.	
SAE DACCO, TNC. Well Contractor Company Name			Measuring point is ft. above land surface.	
STREET ADDRESS 9088 NO	ORTHFIELD DR	6.	CASING: Length Diameter	
FORT MILL SC City or Town State	29707		a. Casing Depth (if known):	in
City or Town State	Zip Code		b. Casing Removed: ft.	in.
(89)- 548-2180		\prod		
Area code - Phone number		7.	The state of the s	
2. WELL INFORMATION:	<i>v</i> − 30		(Amount of 65%-75% calcium hypochlorite used)	
SITE WELL ID # (if applicable) / C	<u> </u>	8.	SEALING MATERIAL:	
STATE WELL PERMIT # (if applicable)			Neat Cement Sand Cement	
COUNTY WELL PERMIT # (if applicable)			Cement lb. Cement lb. Water gal. Water ga	ł.
DWQ or OTHER PERMIT # (if applicable)_	, ,		Bentonite	
WELL USE (Circle applicable use): Monito		[]	Bentonite 4 lb.	
Municipal/Public Industrial/Commer Recovery Injection Irrigation	cial Agricultural		Type: Slurry_ Pellets 🔨	
Other (list use)			Water <u>O,49</u> gal.	
3. WELL LOCATION:			<u>Other</u>	
COUNTY CNSLOW QUADRANGLE	NAME I		Type material	
NEAREST TOWN: JACKSONVIL			Amount	
CAMP JOHNSON				
(Street/Road Name, Number, Community, Subdivis	sion, Lot No., Parcel, Zip Code)	9.	EXPLAIN METHOD OF EMPLACEMENT OF MATERI	AL:
TOPOGRAPHIC / LAND SETTING:			ROPEHOLE WAS FILLED WITH CHIPS AF	TER
Slope Valley Flat Ridge Other (Circle appropriate setting)			WELL WAS ZEMOVED	
(entire appropriate sectory)	 			
LATITUDE	May be in degrees, minutes, seconds, or in a			
LONGITUDE	decimal format	10.	WELL DIAGRAM: Draw a detailed sketch of the well on the	back of this
Latitude/longitude source: GPS	Topographic map		form showing total depth, depth and diameter of screens (if an	.,
(Location of well must be shown on a U. attached to this form if not using GPS.			in the well, gravel interval, intervals of easing perforations, and types of fill materials used.	d depths and
4a. FACILITY-The name of the business where the w (If a residential well, skip 4a; complete 4b, well owne	ell is located. Complete 4a and4b.	,,	DATE WELL ABANDONED 7/29/09	
	- · · · · · · · · · · · · · · · · · · ·	11.	DATE WELL ABANDONED 17-77	
FACILITY ID #(if applicable)	HWSCA		HEREBY CERTIFY THAT THIS WELL WAS ABANDONED IN ACCOMENTATION STANDARDS, AND THAT	
STREET ADDRESS			S RECORD HAS BEEN PROVIDED TO THE WELL OWNER.	
JACKSCHULLE NIC			10/	13/09
STREET ADDRESS JACK Scyclic AC City or Town State Zip Code		SIGN	NATURE OF CERTIFIED WELL CONTRACTOR	DATE
4b. CONTACT PERSON/WELL OWNER:				
NAME KERT HALRESE CI			NATURE OF PRIVATE WELL OWNER ABANDONING THE WELL	
STREET ADDRESS 4524 MACKL			private well owner must be an individual who personally abandons his/her cordance with I5A NCAC 2C .0113.)	residentia: well
		171	THOMAS NTED NAME OF PERSON ABANDONING THE WELL	
City or Town State 2	Zip Code	PRIN	NTED NAME OF PERSON ABANDONING THE WELL	
(704)- 975-2980				
Area code - Phone number		1		



WELL ABANDONMENT RECORD

North Carolina Department of Environment and Natural Resources- Division of Water Quality

1. WELL CONTRACTOR:		5. WELL DETAILS:
TIM THOMAS		a. Total Depth: 18 ft. Diameter: 1 in.
Well Contractor (Individual) Name		b. Water Level (Below Measuring Point): ft.
SAEDACCO TNC. Well Contractor Company Name		Measuring point is ft. above land surface.
STREET ADDRESS 9088 NO	ARTHFIELD DR	6. CASING: Length Diameter
FORT MILL SC City or Town State		a. Casing Depth (if known): ft in. b. Casing Removed: ft in.
(803) - 548 2180 Area code - Phone number		7. DISINFECTION: OIL 15
2. WELL INFORMATION:	_	(Amount of 65%-75% calcium hypochlorite used)
SITE WELL ID # (if applicable)	<u>0 - 31</u>	8. SEALING MATERIAL:
STATE WELL PERMIT # (if applicable)		Neat Cement Sand Cement
COUNTY WELL PERMIT # (if applicable)_		Cement lb. Ccment lb. Water gal. Water gal.
DWQ or OTHER PERMIT # (if applicable)		Bentonite
WELL USE (Circle applicable use): (Monito Municipal/Public Industrial/Commercial Recovery Injection Irrigation Other (list use)	ial Agricultural	Bentonite lb. Type: Slurry Pellets \(\(\) Water \(\) , 7 \(\) gal.
		<u>Other</u>
3. WELL LOCATION:		Type material
COUNTY CNSLOW QUADRANGLE		Amount
NEAREST TOWN: <u>JACKSONVIC</u> <u>CAMP</u> JOHNSON		Amoun
(Street/Road Name, Number, Community, Subdivis	ion, Lot No., Parcel, Zip Code)	9. EXPLAIN METHOD OF EMPLACEMENT OF MATERIAL:
TOPOGRAPHIC / LAND SETTING:		BORCHOLE WAS FILLED WITH CHIPS AFTER
Slope Valley Flat Ridge Other (Circle appropriate setting)		WELL WAS ZEMOUED
	May be in degrees,	
LATITUDE	minutes, seconds, or in a	
LONGITUDE	decimal format	10. WELL DIAGRAM: Draw a detailed sketch of the well on the back of this
Latitude/longitude source: GPS (Location of well must be shown on a Usattached to this form if not using GPS.)	SGS topo map and	form showing total depth, depth and diameter of screens (if any) remaining in the well, gravel interval, intervals of casing perforations, and depths and types of fill materials used.
4a. FACILITY- The name of the business where the we (If a residential well, skip 4a; complete 4b, well owne		11. DATE WELL ABANDONED 7/29/09
FACILITY ID #(if applicable)	1	I DO HEREBY CERTIFY THAT THIS WELL WAS ABANDONED IN ACCORDANCE
NAME OF FACILITY CAMP JO		WITH 15A NCAC 2C, WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF THIS RECORD HAS BEEN PROVIDED TO THE WELL OWNER.
STREET ADDRESS	· · · · · · · · · · · · · · · · · · ·	
STREET ADDRESS TAUL SCIENCE ACC City or Town State Zip Code		SIGNATURE OF CERTIFIED WELL CONTRACTOR DATE
	Zip Code	SIGNATURE OF CERTIFIED WEEL CONTRACTOR
4b. CONTACT PERSON/WELL OWNER:	12m 11u 1	
NAME K-CRI HAURORE CI		SIGNATURE OF PRIVATE WELL OWNER ABANDONING THE WELL DATE (The private well owner must be an individual who personally abandons his/her residential well
STREET ADDRESS 4824 PARKL		in accordance with 15A NCAC 2C .0113.)
CHARLETTE NC City or Town State Z		PRINTED NAME OF PERSON ABANDONING THE WELL
	•	
(704)- 975-798C		
Area code - Phone number		



WELL CONTRACTOR CERTIFIC	ATION # 2012
1. WELL CONTRACTOR:	5. WELL DETAILS:
TIM THOMAS	a. Total Depth: 20 ft. Diameter: 1 in.
Well Contractor (Individual) Name	b. Water Level (Below Measuring Point): ft.
SAE DACCO TNC. Well Contractor Company Name	Measuring point is fl. above land surface.
STREET ADDRESS 9088 NORTHFIELD DR	6. CASING: Length Diameter
FORT MILL SC 29707 City of Town State Zip Code	a. Casing Depth (if known): ft in.
City of Town State Zip Code	b. Casing Removed: ft. in.
$\frac{(803)}{\text{Area code - Phone number}} = \frac{548 - 2180}{\text{Area code - Phone number}}$	7. DISINFECTION: 0.16.15
2. WELL INFORMATION:	(Amount of 65%-75% calcium hypochlorite used)
SITE WELL ID # (if applicable) 700 - 32	8. SEALING MATERIAL:
STATE WELL PERMIT # (if applicable)	Neat Cement Sand Cement
COUNTY WELL PERMIT # (if applicable)	Cement lb. Cement lb. Water gal. Water gal.
DWQ or OTHER PERMIT # (if applicable)	Bentonite
WELL USE (Circle applicable use): (Monitoring) Residential	Bentonite 6 1b.
Municipal/Public Industrial/Commercial Agricultural Recovery Injection Irrigation	Type: Slurry_Pollets 🖔
Other (list use)	Water O, & 2 gal.
3. WELL LOCATION:	<u>Other</u>
COUNTY CNSLOW QUADRANGLE NAME	Type material
NEAREST TOWN: JACKSONVICE NC	Amount
CAMP JOHNSON	
(Street/Road Name, Number, Community, Subdivision, Lot No., Parcel, Zip Code)	9. EXPLAIN METHOD OF EMPLACEMENT OF MATERIAL:
TOPOGRAPHIC / LAND SETTING:	BORCHOLE WAS FILLED WITH CHIPS AFTER
Slope Valley Flat Ridge Other (Circle appropriate setting)	WELL WAS ZEMOVED
LATITUDE May be in degrees, minutes, seconds, or in a	
LONGITUDE decimal format	10. WELL DIAGRAM: Draw a detailed sketch of the well on the back of this
Latitude/longitude source: GPS Topographic map (Location of well must be shown on a USGS topo map and attached to this form if not using GPS.)	form showing total depth, depth and diameter of screens (if any) remaining in the well, gravel interval, intervals of casing perforations, and depths and types of fill materials used.
a. FACILITY- The name of the business where the well is located. Complete 4a and 4b. (If a residential well, ckip 4a; complete 4b, well owner information only.)	11. DATE WELL ABANDONED 7/29/09
FACILITY ID #(if applicable)	I DO HEREBY CERTIFY THAT THIS WELL WAS ABANDONED IN ACCORDANCE
NAME OF FACILITY CAMP JOHNSON	WITH 15A NCAC 2C, WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF THIS RECORD HAS BEEN PROVIDED TO THE WELL OWNER.
STREET ADDRESS	
City or Town State Zip Code	SIGNATURE OF CERTIFIED WELL CONTRACTOR OATE
b. CONTACT PERSON/WELL OWNER:	
NAME KERT HAURER CHEMHILL	SIGNATURE OF PRIVATE WELL OWNER ABANDONING THE WELL DATE
STREET ADDRESS 4824 PRIVILLAY PLAZA BLUD	(The private well owner must be an individual who personally abandons his/her residential well in accordance with 15A NCAC 2C .0113.)
CHAIRCO 77 C NC City or Town State Zip Code	TIM THOMAS PRINTED NAME OF PERSON ABANDONING THE WELL
	TRAINED BARRE OF LEBOOR ADDITIONAL THE WARD
(704) - 775 - 298C) Area code - Phone number	·



WELL CONT	TRACTOR CERTIFI	CATIO	N# 2012	
1. WELL CONTRACTOR:		5.	WELL DETAILS:	
TIM THOMAS			a. Total Depth: 18	ft. Diameter: 1 in.
Well Contractor (Individual) Name			b. Water Level (Below Measur	
SAEDACCO, INC.			Measuring point is	ft. above land surface.
Well Contractor Company Name	_		G. ONLG	
STREET ADDRESS 9088 NO		6.	CASING:	Length Diameter
FORT MILL SC City or Town State	27/C/		a. Casing Depth (if known).	ft. <u> </u>
(83)- 548 2180	ZIP Coue		b. Casing Removed:	ft. in.
Area code - Phone number		7.	disinfection: 0,16	16
Z. WELL INFORMATION:			(Amount of 65%-75% calcium	
SITE WELL ID # (if applicable) 7 G	<u> </u>	. 8.	SEALING MATERIAL:	
STATE WELL PERMIT # (if applicable)		.	Neat Cement	Sand Cement
			Cementlb.	Cemen(lb.
COUNTY WELL PERMIT # (if applicable)	·		Watergal.	Water gal.
DWQ or OTHER PERMIT # (if applicable)		.	Bentonite	
WELL USE (Circle applicable use): Monitor Municipal/Public Industrial/Commercial			Bentonite 5 lb.	
Recovery Injection Irrigation	ial Agricultural	l i	Type: Slurry_ Pellets 🔏 Water ga	.1
Other (list use)				
3. WELL LOCATION:			<u>Other</u>	
COUNTY CNSLCW QUADRANGLE N	AME	11	Type material	
NEAREST TOWN: _TACKSONVICE			Amount	
CAMP JOHNSON				
(Street/Road Name, Number, Community, Subdivision	on, Lot No., Parcel, Zip Code)	9.	EXPLAIN METHOD OF EM	PLACEMENT OF MATERIAL:
TOPOGRAPHIC / LAND SETTING:			BURCHOLE WAS FI	LLED WITH CHIPS AFTER
Slope Valley Flat Ridge Other (Circle appropriate setting)			WELL WAS ZEMOU	<u> </u>
r (energy appropriate setting)				
LATITUDE	May be in degrees, minutes, seconds, or in a			
LONGITUDE	decimal format	10.	WELL DIAGRAM: Draw a do	tailed sketch of the well on the back of this
Latitude/longitude source: GPS (Location of well must be shown on a US attached to this form if not using GPS.)				n and diameter of screens (if any) remaining rvals of casing perforations, and depths and
a. FACILITY-The name of the business where the wel (If a residential well, akip 4a; complete 4b, well owner		11.	DATE WELL ABANDONED_	7/29/09
FACILITY ID #(if applicable)		OGI	HEREBY CERTIFY THAT THIS WE	ELL WAS ABANDONED IN ACCORDANCE
NAME OF FACILITY CAMP JO			H 15A NCAC 2C, WELL CONSTRUC RECORD HAS BEEN PROVIDED T	TION STANDARDS, AND THAT A COPY OF
STREET ADDRESS				
City or Town State	Zip Code	SIGN	ATURE OF CERTIFIED WELL C	ONTRACTOR DATE
b. CONTACT PERSON/WELL OWNER:				
NAME KERT HALREDE, CH	12m HILL			NER ABANDONING THE WELL DATE
STREET ADDRESS 4824 PARKLO	AY PLAZA BLUD		private well owner must be an individu cordance with 15A NCAC 2C .0113.)	al who <u>personally</u> abandons his/her residential well
CHAVECUTTE NC City or Town State Zi		11 7	THOMAS	
City or Town State Zi	p Code	PRIN	TED NAME OF PERSON ABANDO	ONING THE WELL
(704) - 975 - 29 8 C				



WELL CONTRACTOR CERTIFIC	ation # 2012
I. WELL CONTRACTOR:	5. WELL DETAILS:
TIM THOMAS	a. Total Depth: 18 ft. Diameter: 1 in.
Well Contractor (Individual) Name	b. Water Level (Below Measuring Point): ft.
SAE DACCO, ZNC. Well Contractor Company Name	Measuring point isft. above land surface.
STREET ADDRESS 9088 NORTHFIELD DR	6. CASING: Length Diameter
FORT MILL SC 29707 City or Town State Zip Code	a. Casing Depth (if known): ft. in. b. Casing Removed: ft. in.
Area code - Phone number	7. DISINFECTION: 0.16.15
. WELL INFORMATION:	(Amount of 65%-75% calcium hypochlorite used)
SITE WELL ID # (if applicable) Two - 34	8. SEALING MATERIAL:
STATE WELL PERMIT # (if applicable)	Neat Cement Sand Cement
COUNTY WELL PERMIT # (if applicable)	Cement lb. Cement lb. Water gal. Water gal.
DWQ or OTHER PERMIT # (if applicable)	Bentonite
WELL USE (Circle applicable usc): (Monitoring) Residential Municipal/Public Industrial/Commercial Agricultural Recovery Injection Irrigation	Bentonite lb. Type: Slurry Pellets &
Other (list use)	Water 0,74 gal.
3. WELL LOCATION:	Other
COUNTY ONS LOW QUADRANGLE NAME	Type material
NEAREST TOWN: TACKSONVICE, NC CAMP JOHNSON	Amount
(Street/Road Name, Number, Community, Subdivision, Lot No., Parcel, Zip Code)	9. EXPLAIN METHOD OF EMPLACEMENT OF MATERIAL:
TOPOGRAPHIC / LAND SETTING:	BORCHOLE WAS FILLED WITH CHIPS AFTER
Slope Valley Flat Ridge Other	WELL WAS ZEMOVED
(Circle appropriate setting)	
LATITUDE May be in degrees, minutes, seconds, or in a	
LONGITUDE decimal format	10. WELL DIAGRAM: Draw a detailed sketch of the well on the back of this
Latitude/longitude source: GPS Topographic map (Location of well must be shown on a USGS topo map and attached to this form if not using GPS.)	form showing total depth, depth and diameter of screens (if any) remaining in the well, gravel interval, intervals of casing perforations, and depths and types of fill materials used.
a. FACILITY- The name of the business where the well is located. Complete 4a and 4b. (If a residential well, 2kip 4a; complete 4b, well owner information only.)	11. DATE WELL ABANDONED 7/29/09
FACILITY ID #(if applicable)	I DO HEREBY CERTIFY THAT THIS WELL WAS ABANDONED IN ACCORDANCE
NAME OF FACILITY CAMP JOHNSON	WITH 15A NCAC 2C, WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF THIS RECORD HAS BEEN PROVIDED TO THE WELL OWNER.
STREET ADDRESS	
City or Town State Zip Code	SIGNATURE OF CERTIFIED WELL CONTRACTOR DATE
b. CONTACT PERSON/WELL OWNER:	
NAME KERT HAURER CHEM HILL	SIGNATURE OF PRIVATE WELL OWNER ABANDONING THE WELL DATE
STREET ADDRESS 4824 PARKWAY PLAZA BLUD	(The private well owner must be an individual who <u>personally</u> abandons his/her residential well in accordance with 15A NCAC 2C .0113.)
CHARCUTTE NC City or Town State Zip Code	TIM THOMAS PRINTED NAME OF PERSON ABANDONING THE WELL
	TRINIED NAME OF TERSON ABANDONING THE WELL
(704) - 575-7980 Area code - Phone number	



WELL ABANDONMENT RECORD

North Carolina Department of Environment and Natural Resources- Division of Water Quality

I. WELL CONTRACTOR:		5.	WELL DETAILS:	•	
TIM THOMAS			a. Total Depth: ZO f	i. Diameter:	 in.
Well Contractor (Individual) Name			b. Water Level (Below Measuring		
SAEDACCO, TNC.			Measuring point is	ft. above land su	rface.
Well Contractor Company Name	07115 E N NO		CASING	Lamush	Diameter
STREET ADDRESS 9088 NO		6.	CASING:	Length	Diameter
FORT MILL SC City or Town State	27 / C /		a. Casing Depth (if known):		<u> •</u> in.
(863) - 548 - 218C	Zip Code			ft.	in.
Area code - Phone number		7.	DISINFECTION: 016	,15	
- WOLL VALEOUM A TION.			(Amount of 65%-75% calcium		
2. WELL INFORMATION: SITE WELL ID # (if applicable)	_ 35 _ ب	8.	SEALING MATERIAL:		
STATE WELL PERMIT # (if applicable)			Neat Cement	Sand Cemer	<u>11</u>
			Cementlb.	Cement	lb.
COUNTY WELL PERMIT # (if applicable)_]	Water gal.	Water	
DWQ or OTHER PERMIT # (if applicable)_			Bentonite		
WELL USE (Circle applicable use): Monito Municipal/Public Industrial/Commerce			Bentonite 6 lb.		
Municipal/Public Industrial/Commerce Recovery Injection Irrigation	ciai Agriculturai	11	Type: Slumy_Pellets X Water		
Other (list use)			water Or Q Z gar		
3. WELL LOCATION:			<u>Other</u>		
COUNTY CASS LOW QUADRANGLE	NAME		Type material	<u>.</u>	
NEAREST TOWN: TACKSONVICE			Amount		<u>.</u> _
CAMP JOHNSON					
(Street/Road Name, Number, Community, Subdivis	tion, Lot No., Parcel, Zip Code)	g.	EXPLAIN METHOD OF EMI	PLACEMENT OF	MATERIAL:
TOPOGRAPHIC / LAND SETTING:]	BURCHOLE WAS FIL	LED WITH CH	IPS AFTER
			WELL WAS ZEMOUS	Z/)	
(Circle appropriate setting)					
LATITUDE	May be in degrees, minutes, seconds, or in a				
LONGITUDE	decimal format	10.	WELL DIAGRAM: Draw a de	tailed sketch of the	well on the back of this
Latitude/longitude source: GPS			form showing total depth, depth		
(Location of well must be shown on a U. attached to this form if not using GPS.			in the well, gravel interval, inter types of fill materials used.	vals of casing perfo	rations, and depths and
a. FACILITY- The name of the business where the w			types of fin materials used.	7/29/0	G
(If a residential well, akip 4a; complete 4b, well owner		11.	DATE WELL ABANDONED_	7/27/0	
FACILITY ID #(if applicable)	· · · · · · · · · · · · · · · · · · ·		HEREBY CERTIFY THAT THIS WE		
NAME OF FACILITY CAMP JO			I 15A NCAC 2C, WELL CONSTRUC RECORD HAS BEEN PROVIDED TO		
STREET ADDRESS					10/10/09
STREET ADDRESS JACK School Co. City or Town State Zip Code		SIGN	ATURE OF CERTIFIED WELL CO	ONTRACTOR	DATE
b. CONTACT PERSON/WELL OWNER:	Sip See				
	42m HICC	SIGN	ATURE OF PRIVATE WELL OW	ER ABANDONING	THE WELL DATE
NAME KURI HAURURG, CI STREET ADDRESS 4824 PARKL	JAY PHAZA BULD	(The	private well owner must be an individual ordance with 15A NCAC 2C .0113.)	ił who <u>personally</u> aban	dons his/her residential well
		}	M 7HOMA S		
City or Town State 3	Zip Code	PRIN	TED NAME OF PERSON ABANDO	NING THE WELL	
(704)- 975-7980					
Area code - Phone number					



WELL ABANDONMENT RECORD

North Carolina Department of Environment and Natural Resources- Division of Water Quality

WELL CONTRACTOR CERTIFI	ICATION # 2012
I. WELL CONTRACTOR:	5. WELL DETAILS:
TIM THOMAS Well Contractor (Individual) Name	a. Total Depth:ft. Diameter:fn. b. Water Level (Below Measuring Point):ft.
SAE DACCO, TNC. Well Contractor Company Name	Measuring point isft. above land surface.
STREET ADDRESS GORY NORTHFIELD DR	6. CASING: Length Diameter
FORT MILL SC 29707 City or Town State Zip Code	a. Casing Depth (if known): b. Casing Removed: ft. in.
(83) - 548 2 (80) Area code - Phone number	7. DISINFECTION: 0.1616
2. WELL INFORMATION:	(Amount of 65%-75% calcium hypochlorite used)
SITE WELL ID # (if applicable) 700-36	8. SEALING MATERIAL:
STATE WELL PERMIT # (if applicable)	Neat Cement Sand Cement
COUNTY WELL PERMIT # (if applicable)	Cement 1b. Cement 1b. Water gal. Water gal.
DWQ or OTHER PERMIT # (if applicable)	Bentonite
WELL USE (Circle applicable usc): Monitoring Residential Municipal/Public Industrial/Commercial Agricultural Recovery Injection Irrigation	Bentonite
Other (list usc)	Water O, 9 gal.
3. WELL LOCATION:	Other Other
COUNTY CNSLCED QUADRANGLE NAME	Type material
NEAREST TOWN: TACKSONVILLE, NC	Amount
CAMP JOHNSON	
(Street/Road Name, Number, Community, Subdivision, Lot No., Parcel, Zip Code)	9. EXPLAIN METHOD OF EMPLACEMENT OF MATERIAL:
TOPOGRAPHIC / LAND SETTING: Slope Valley Flat Ridge Other (Circle appropriate setting)	BORCHOLE WAS FILLED WITH CHIPS AFTER WELL WAS ZEMOWED
LATITUDE May be in degrees,	
LATITUDE minutes, seconds, or in a decimal format	10. WELL DIAGRAM: Draw a detailed sketch of the well on the back of this
Latitude/longitude source: GPS Topographic map (Lacation of well must be shown on a USGS topo map and attached to this form if not using GPS.)	form showing total depth, depth and diameter of screens (if any) remaining in the well, gravel interval, intervals of casing perforations, and depths and types of fill materials used.
a. FACILITY- The name of the business where the well is located. Complete 4a and 4b. (If a residential well, akip 4a; complete 4b, well owner information only.)	11. DATE WELL ABANDONED 7/29/09
FACILITY ID #(if applicable)	I DO HEREBY CERTIFY THAT THIS WELL WAS ABANDONED IN ACCORDANCE
NAME OF FACILITY CAMP JOHNSON	WITH 15A NCAC 2C, WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF THIS RECORD HAS BEEN PROVIDED TO THE WELL OWNER.
STREET ADDRESS	
City or Town State Zip Code	SIGNATURE OF CERTIFIED WELL CONTRACTOR 10/13/C ⁹ DATE
b. CONTACT PERSON/WELL OWNER:	
NAME KODI HAUROZE CHZM HICC	SIGNATURE OF PRIVATE WELL OWNER ABANDONING THE WELL DATE (The private well owner must be an individual who personally abandons his/her residential well
STREET ADDRESS 4824 PARKWAY PLAZA RUD	in accordance with 15A NCAC 2C .0113.)
CHAPLUTTE NC City or Town State Zip Code	FRINTED NAME OF PERSON ABANDONING THE WELL
(704) - 775 - 29 8 C) Area code - Phone number	



WELL CONTRACTOR CERTIFIC	CATION # 2012
1. WELL CONTRACTOR:	5. WELL DETAILS:
TIM THOMAS Well Contractor (Individual) Name	a. Total Depth: 16 ft. Diameter: 1 in. b. Water Level (Below Measuring Point): ft.
SAE DACCO, TNC. Well Contractor Company Name	Measuring point is ft. above land surface.
STREET ADDRESS 9088 NORTHFIELD DR	6. CASING: Length Diameter
FORT MILL SC 29707 City of Town State Zip Code (83) 548 2180	a. Casing Depth (if known): b. Casing Removed: ft in. in.
Area code - Phone number	7. disinfection: 0.16 (6
2. WELL INFORMATION: SITE WELL ID # (if applicable) 760 - 37	(Amount of 65%-75% calcium hypoehlorite used) 8. SEALING MATERIAL:
STATE WELL PERMIT # (if applicable)	Neat Cement Sand Cement
COUNTY WELL PERMIT # (if applicable)	Cement lb. Cement lb. Water gai. Water gal.
DWQ or OTHER PERMIT # (if applicable)	Bentonite
WELL USE (Circle applicable use): Monitoring Residential Municipal/Public Industrial/Commercial Agricultural Recovery Injection Irrigation	Bentonite lb. Type: Slurry Pellets \(\) Water O G G gal.
Other (list use)	Water o.66 gal.
1 WELL LOCATION	Other
3. WELL LOCATION: COUNTY CNSLOW QUADRANGLE NAME	Type material
NEAREST TOWN: JACKSONVICE, NC	Amount
CAMD JOHNSON	
(Street/Road Name, Number, Community, Subdivision, Lot No., Parcel, Zip Code)	9. EXPLAIN METHOD OF EMPLACEMENT OF MATERIAL:
TOPOGRAPHIC / LAND SETTING: Slope Valley Flat Ridge Other (Circle appropriate setting)	BORTHOLE WAS FILLED WITH CHIPS AFTER WELL WAS ZEMONED
LATITUDE May be in degrees,	
LONGITUDE minutes, seconds, or in a decimal format	10. WELL DIAGRAM: Draw a detailed sketch of the well on the back of this
Latitude/longitude source: GPS Topographic map (Location of well must be shown on a USGS topo map and attached to this form if not using GPS.)	form showing total depth, depth and diameter of screens (if any) remaining in the well, gravel interval, intervals of casing perforations, and depths and types of fill materials used.
a. FACILITY: The name of the business where the well is located. Complete 4a and4b. (If a residential well, skip 4a; complete 4b, well owner information only.)	11. DATE WELL ABANDONED 7/29/09
FACILITY ID #(if applicable)	I DO HEREBY CERTIFY THAT THIS WELL WAS ABANDONED IN ACCORDANCE
NAME OF FACILITY CAMP JOHNSON	WITH 15A NCAC 2C, WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF THIS RECORD HAS BEEN PROVIDED TO THE WELL OWNER.
STREET ADDRESS	11/2/09
City or Town State Zip Code	SIGNATURE OF CERTIFIED WELL CONTRACTOR DATE
b. CONTACT PERSON/WELL OWNER:	
NAME KUTZI HAWRUZG CHZMHILL	SIGNATURE OF PRIVATE WELL OWNER ABANDONING THE WELL DATE
STREET ADDRESS 4824 PARKLEAY PLAZA BLUD	(The private well owner must be an individual who <u>personally</u> abandons his/her residential well in accordance with 15A NCAC 2C .0!13.)
CHARCUTTE NC City or Town State Zip Code	TIM THOMAS PRINTED NAME OF PERSON ABANDONING THE WELL
City or Town State Zip Code	PRINTED NAME OF PERSON ABANDONING THE WELL
(704)- 975-298C	
Area code - Phone number	



WELL ABANDONMENT RECORD

North Carolina Department of Environment and Natural Resources- Division of Water Quality

 		
1. WELL CONTRACTOR:		5. WELL DETAILS:
TIM THOMAS		a. Total Depth: 16 ft. Diameter: 1 in.
Well Contractor (Individual) Name		b. Water Level (Below Measuring Point): ft.
SAE DACCO ZNC. Well Contractor Company Name		Measuring point is fl. above land surface.
STREET ADDRESS SCREEN ADDRESS		6. CASING: Length Diameter
• — •		6. CASING: Length Diameter
FORT MILL SC City or Town State	27 / C /	a. Casing Depth (if known): ft in.
(843) - 548-2180	Zip Code	b. Casing Removed: ft. in.
Area code - Phone number		7. DISINFECTION: 0.16 (b
2. WELL INFORMATION:		(Amount of 65%-75% catcium hypochlorite used)
SITE WELL ID # (if applicable)	<i>v</i> - 38	8. SEALING MATERIAL:
STATE WELL PERMIT # (if applicable)		Neat Cement Sand Cement
COUNTY WELL PERMIT # (if applicable)_		Cement lb. Cement lb. Water gal. Water gal.
DWQ or OTHER PERMIT # (if applicable)_		. Bentonite
WELL USE (Circle applicable use): (Monite Municipal/Public Industrial/Commercial Recovery Injection Irrigation	cial Agricultural	Bentonite S lb. Type: Slurry Pellets X Water O. 66 gal.
Other (list use)		Other
3. WELL LOCATION:		H —
COUNTY CNSLOW QUADRANGLE	NAME	Type material
NEAREST TOWN: JACKSONVIC	LE, NC	Amount
CAMP JOHNSON	-	
(Street/Road Name, Number, Community, Subdivis	ion, Lot No., Parcel, Zip Code)	9. EXPLAIN METHOD OF EMPLACEMENT OF MATERIAL:
TOPOGRAPHIC / LAND SETTING:		BORCHOLE WAS FILLED WITH CHIPS AFTER
Slope Valley Flat Ridge Other (Circle appropriate setting)		WELL WAS ZEMOUED
· (
LATITUDE	May be in degrees, minutes, seconds, or in a	
LONGITUDE	decimal format	10. WELL DIAGRAM: Draw a detailed sketch of the well on the back of this
Latitude/longitude source: GPS (Location of well must be shown on a U. attached to this form if not using GPS.		form showing total depth, depth and diameter of screens (if any) remaining in the well, gravel interval, intervals of casing perforations, and depths and types of fill materials used.
Ba. FACILITY- The name of the business where the week (If a residential well, akip 4a; complete 4b, well owner)		11. DATE WELL ABANDONED 7/29/09
FACILITY ID #(if applicable)		I DO HEREBY CERTIFY THAT THIS WELL WAS ABANDONED IN ACCORDANCE
NAME OF FACILITY CAMP JO	4050°	WITH 15A NCAC 2C, WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF THIS RECORD HAS BEEN PROVIDED TO THE WELL OWNER.
STREET ADDRESS		
STREET ADDRESS TACK SCHOOLE NC City or Town State	Zin Codo	SIGNATURE OF CERTIFIED WELL CONTRACTOR DATE
	Zip Code	SIGNATURE OF CERTIFIED WEED CONTRACTOR
b. CONTACT PERSON/WELL OWNER:	12m 1115	CICAL TUDE OF PRINCIPLE AND
NAME K-CTZI 1-laurcze CI		SIGNATURE OF PRIVATE WELL OWNER ABANDONING THE WELL DATE (The private well owner must be an individual who personally abandons his/her residential well
STREET ADDRESS 4824 PARKL		in accordance with 15A NCAC 2C .0113.)
CHARWTT NC City or Town State Z	<u> </u>	TIM THOMAS PRINTED NAME OF PERSON ABANDONING THE WELL
(704)- 775-758C) Area code - Phone number		
Area code - Phone number		



WELL ABANDONMENT RECORD

North Carolina Department of Environment and Natural Resources- Division of Water Quality

WELL CO.	VIRACIOR CERTIFIC		N#	
I. WELL CONTRACTOR:		5.	WELL DETAILS:	
_TIM _THOMAS		- } }	a. Total Depth; 20 f	i. Diameter: L in
Well Contractor (Individual) Name	·		b. Water Level (Below Measuring	
SAEDACCO, INC.			Measuring point is	-
Well Contractor Company Name	_			
STREET ADDRESS 9088 N		6.	CASING:	Length Diameter
FORT MILL SC City or Town State	29707		a. Casing Depth (if known):	ft in.
City or Town State	Zip Code		b. Casing Removed:	ft in.
Area code - Phone number		7.	DISINFECTION: 0.10	016
2. WELL INFORMATION:			(Amount of 65%-75% calcium	
SITE WELL ID # (if applicable)	w - 39	. 8.	SEALING MATERIAL:	,
STATE WELL PERMIT # (if applicable)			Neat Cement	Sand Cement
STATE WELD I EXAMIT # (II application)			Company	
COUNTY WELL PERMIT # (if applicable)			Cement Ib. Water gal.	Cementlb. Watergal.
DWQ or OTHER PERMIT # (if applicable)			Bentonite	
WELL USE (Circle applicable use): Monit Municipal/Public Industrial/Commet Recovery Injection Irrigation	rcial Agricultural		Bentonite 6 lb. Type: Slurry Pellets 6 Water 0 82 gal	
Other (list use)			Oth <u>er</u>	
3. WELL LOCATION:				
COUNTY CNSLOW QUADRANGLE			4	
NEAREST TOWN: JACKSONVIC	IE, NC		Amount	
CAMP JOHNSON				
(Street/Road Name, Number, Community, Subdivi	ision, Lot No., Parcel, Zip Code)	9.	EXPLAIN METHOD OF EMI	PLACEMENT OF MATERIAL:
TOPOGRAPHIC / LAND SETTING:		11	BORCHOLE WAS FIL	LED WITH CHIPS AFTER
			WELL WAS ZEMOUS	ZO
(Circle appropriate setting)			<u></u>	
LATITUDE	May be in degrees, minutes, seconds, or in a			
LONGITUDE	decimal format	10.	WELL DIAGRAM: Draw a det	ailed sketch of the well on the back of this
Latitude/longitude source: GPS	Topographic map	11		and diameter of screens (if any) remaining
(Location of well must be shown on a U attached to this form if not using GPS	JSGS topo map and		in the well, gravel interval, inter- types of fill materials used.	vals of casing perforations, and depths and
 FACILITY- The name of the business where the v (If a residential well, akip 4a; complete 4b, well own 	well is located. Complete 4a and4b.		DATE WELL ABANDONED	7/29/09
FACILITY ID #(if applicable)	or morning only.)	11 ***	DALLE WELL ADANDONED_	
NAME OF FACILITY CAMP JO	HESCOS			LL WAS ABANDONED IN ACCORDANCE FION STANDARDS, AND THAT A COPY OF
STREET ADDRESS			RECORD HAS BEEN PROVIDED TO	
TANK COMMUNICATION AND				10/13/09
City or Town State	Zip Code	SIGN	ATURE OF CERTIFIED WELL CO	NTRACTOR DATE
b. CONTACT PERSON/WELL OWNER:				
NAME KERT HAURCOL, C				ER ABANDONING THE WELL. DATE
STREET ADDRESS 4824 PARKL		in acc	ordance with 15A NCAC 2C .0113.)	l who <u>personally</u> abandons his/her residential well
CHARLUTTE NC City or Town State		11	M 740MA S	MINO THE MALL
		PRIN	TEU NAME OF PERSON ABANDO	MING THE WELL
(704)- 975-2980	•			
Area code - Phone number		11	•	



North Carolina Department of Environment and Natural Resources- Division of Water Quality

WEBB COI	THE TOR CERTIFY		<u> </u>	
1. WELL CONTRACTOR:		5.	WELL DETAILS:	
TIM THOMAS			a. Total Depth: ZO	ft. Diameter: 1 in.
Well Contractor (Individual) Name			b. Water Level (Below Measur	
SAEDACCO, INC.			Measuring point is	-
Well Contractor Company Name	_			
STREET ADDRESS 9088 NO		6.	CASING:	Length Diameter
FORT MILL SC City of Town State	29707 Zip Code		a. Casing Depth (if known): b. Casing Removed:	ftininin.
(83) <u>548-2180</u>				_
Area code - Phone number		7.	DISINFECTION: 0,11	, 16
2. WELL INFORMATION:		11	(Amount of 65%-75% calcium	
SITE WELL ID # (if applicable)	<u>v - 40</u>	8.	SEALING MATERIAL:	
STATE WELL PERMIT # (if applicable)			Neat Cement	Sand Cement
COUNTY WELL PERMIT # (if applicable)_			Cement lb. Water gal.	Cernentlb. Watergal.
DWQ or OTHER PERMIT # (if applicable)_	·····		Bentonite	
WELL USE (Circle applicable use): (Monite Municipal/Public Industrial/Commer Recovery Injection Irrigation Other (list use)	cial Agricultural		Bentonite 6 lb. Type: Slurry Pellets 8 Water 0, 8 2 ga	d.
	**************************************		Other	
3. WELL LOCATION:			Tune material	
COUNTY CNSLOW QUADRANGLE			Type material	•
NEAREST TOWN: <u>TACKSONVIC</u> CAMP JOHNSON	CE, NC		Amount	
(Street/Road Name, Number, Community, Subdivis	ion, Lot No., Parcel, Zip Code)	9.	EXPLAIN METHOD OF EM	PLACEMENT OF MATERIAL:
TOPOGRAPHIC / LAND SETTING:	2011.0., 1 = 10., 2., 400.	"		LLED WITH CHIPS AFTER
			WELL WAS ZEMEN	
	May be in degrees,			
LATITUDE	minutes, seconds, or in a]}		
LONGITUDE	decimal format	10.	WELL DIAGRAM: Draw a do	tailed sketch of the well on the back of this
Latitude/longitude source: GPS (Location of well must be shown on a U attached to this form if not using GPS.			*	n and diameter of screens (if any) remaining rvals of easing perforations, and depths and
a. FACILITY: The name of the business where the will (If a residential well, :kip 4a; complete 4b, well owner)		11.	DATE WELL ABANDONED_	7/29/09
FACILITY ID #(if applicable)		11	HEDERY CERTIEV THAT THIS WE	ELL WAS ABANDONED IN ACCORDANCE
NAME OF FACILITY CAMP JO	HINSCA	WITH	i 15A NCAC 2C, WELL CONSTRUC	TION STANDARDS, AND THAT A COPY OF
STREET ADDRESS		THIS	RECORD HAS BEEN PROVIDED T	
City or Town State	7:- 0-1-	SIGN	ATURE OF CERTIFIED WELL C	10/13/05
	Zip Code	3,0	ATORE OF CERTIFIED WELL C	DATE DATE
b. CONTACT PERSON/WELL OWNER:	1700 1141		- · · · · · · · · · · · · · · · · · · ·	
NAME K-CRI HAURGRE CI				NER ABANDONING THE WELL DATE all who personally abandons his/her residential well
STREET ADDRESS 4524 PARKE		in acc	ordance with 15A NCAC 2C .0113.)	
CHAWW77E NC City or Town State 2	·	7/	M 71-WNA S TED NAME OF PERSON ABANDO	ONING THE WELL
		PKIN	TED NAME OF PERSON ABANDO	NAME AFT
(704)- 575-798C				
Area code - Phone number				



2012

North Carolina Department of Environment and Natural Resources-Division of Water Quality

I. WELL CONTRACTOR:		5. WELL DETAILS:
_TIM THOMAS		a. Total Depth: 18 ft. Diameter: 1 in.
Well Contractor (Individual) Name		b. Water Level (Below Measuring Point):ft.
SAE DACCO, TNC. Well Contractor Company Name	-	Measuring point isfi. above land surface.
STREET ADDRESS 9088 NO		6. CASING: Length Diameter
FORT MILL SC City or Town State	29707 Zip Code	a. Casing Depth (if known): b. Casing Removed: ft. in. in.
$\frac{(80)}{\text{Area code}} = \frac{548 - 2180}{\text{Phone number}}$		7. DISINFECTION: 0.16 16
2. WELL INFORMATION:		(Amount of 65%-75% calcium hypochlorite used)
SITE WELL ID # (if applicable)	<i>20</i> − 41	8. SEALING MATERIAL:
STATE WELL PERMIT # (if applicable)		Neat Cement Sand Cement
COUNTY WELL PERMIT # (if applicable)		Cement lb. Cement lb. Water gal. Water gal.
DWQ or OTHER PERMIT # (if applicable)_		Bentonite
WELL USE (Circle applicable use): Monite Municipal/Public Industrial/Commer Recovery Injection Irrigation Other (list use)	cial Agricultural	Bentonite lb. Type: Slurry Pellets gal.
3. WELL LOCATION:		<u>Other</u>
COUNTY CNSLOW QUADRANGLE	NAME	Type material
NEAREST TOWN: JACKSONVIL		Amount
CAMP JOHNSON		
(Street/Road Name, Number, Community, Subdivis	sion, Lot No., Parcel, Zip Code)	9. EXPLAIN METHOD OF EMPLACEMENT OF MATERIAL:
TOPOGRAPHIC / LAND SETTING:		BORCHOLE WAS FILLED WITH CHIPS AFTER
Slope Valley Flat Ridge Other (Circle appropriate setting)		WELL LAS ZEMOUSD
LATITUDE	May be in degrees, minutes, seconds, or in a	
LONGITUDE	decimal format	10. WELL DIAGRAM: Draw a detailed sketch of the well on the back of this
Latitude/longitude source: GPS (Location of well must be shown on a U attached to this form if not using GPS.		form showing total depth, depth and diameter of screens (if any) remaining in the well, gravel interval, intervals of casing perforations, and depths and types of fill materials used.
a. FACILITY-The name of the business where the w (If a residential well, okip 4a; complete 4b, well owner		11. DATE WELL ABANDONED 7/29/09
FACILITY ID #(if applicable)		I DO HEREBY CERTIFY THAT THIS WELL WAS ABANDONED IN ACCORDANCE
NAME OF FACILITY CAMP JC	1102000	WITH 15A NCAC 2C, WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF THIS RECORD HAS BEEN PROVIDED TO THE WELL OWNER.
STREET ADDRESS		
STREET ADDRESS TAGE CONCLETE A C City or Town State Zip Code		SIGNATURE OF CERTIFIED WELL CONTRACTOR 10/13/C ² DATE
b. CONTACT PERSON/WELL OWNER:		
NAME K-CIZI HALREDE C	HZMHICC	SIGNATURE OF PRIVATE WELL OWNER ABANDONING THE WELL DATE
STREET ADDRESS 4824 PARKL	८००७ हिस्से ५०,८	(The private well owner must be an individual who personally abandons his/her residential well in accordance with 15A NCAC 2C .0113.)
CHARCOTTE NC City or Town State	Zip Code	TIM THOMA S PRINTED NAME OF PERSON ABANDONING THE WELL
(704) - 775 - 7986		



North Carolina Department of Environment and Natural Resources- Division of Water Quality

WELL CONTRACTOR CERTIFIC	cation# 2012
1. WELL CONTRACTOR:	5. WELL DETAILS:
TIM THOMAS	a. Total Depth: 18 ft. Diameter: 1 in.
Well Contractor (Individual) Name	b. Water Level (Below Measuring Point): ft.
SAE DACCO TAIC. Well Contractor Company Name	Measuring point is ft. above land surface.
STREET ADDRESS 9088 NORTHFIELD DR	6. CASING: Length Diameter
FORT MILL SC 29707 City or Town State Zip Code	a. Casing Depth (if known): ft. in. b. Casing Removed: ft. in.
(843)- 548-Z(8C)	
Area code - Phone number	7. DISINFECTION: 6 0.16 (6
2. WELL INFORMATION: SITE WELL ID # (if applicable) 700 - 42	(Amount of 65%-75% calcium hypochlorite used)
SITE WELL ID # (if applicable) / W = 4 2	8. SEALING MATERIAL:
STATE WELL PERMIT # (if applicable)	Neat Cement Sand Cement
COUNTY WELL PERMIT # (if applicable)	Cement lb. Cement lb. Water gal. Water gal.
DWQ or OTHER PERMIT # (if applicable)	Bentonite
WELL USE (Circle applicable use): Monitoring Residential Municipal/Public Industrial/Commercial Agricultural Recovery Injection Irrigation	Bentonite lb. Type: Slurry Peilets X Water 7 4 gal.
Other (list use)	Water O. 74 gal.
3. WELL LOCATION:	<u>Other</u>
COUNTY CNSLOW QUADRANGLE NAME	Type material
NEAREST TOWN: TACKSONVICE, NC	Amount
CAMP JOHNSON	
(Street/Road Name, Number, Community, Subdivision, Lot No., Parcel, Zip Code)	9. EXPLAIN METHOD OF EMPLACEMENT OF MATERIAL:
TOPOGRAPHIC / LAND SETTING:	BURCHOLE WAS FILLED WITH CHIPS AFTER
Stope Valley Flat Ridge Other (Circle appropriate setting)	WELL WAS ZEMOVED
. (Cricie appropriate setting)	
LATITUDE May be in degrees, minutes, seconds, or in a	
LONGITUDE decimal format	10. WELL DIAGRAM: Draw a detailed sketch of the well on the back of this
Latitude/longitude source: GPS Topographic map (Location of well must be shown on a USGS topo map and attached to this form if not using GPS.)	form showing total depth, depth and diameter of screens (if any) remaining in the well, gravel interval, intervals of casing perforations, and depths and types of fill materials used.
a. FACILITY-The name of the business where the well is located. Complete 4a and4b. (If a residential well, ckip 4a; complete 4b, well owner information only.)	11. DATE WELL ABANDONED 7/29/09
FACILITY ID #(if applicable)	I DO HEREBY CERTIFY THAT THIS WELL WAS ABANDONED IN ACCORDANCE
NAME OF FACILITY CAMP JOHNSON	WITH 15A NCAC 2C, WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF THIS RECORD HAS BEEN PROVIDED TO THE WELL OWNER.
STREET ADDRESS	
City or Town State Zip Code	SIGNATURE OF CERTIFIED WELL CONTRACTOR 10/13/07
b. CONTACT PERSON/WELL OWNER:	
NAME KERT HAURERE CHEMHILL	SIGNATURE OF PRIVATE WELL OWNER ABANDONING THE WELL DATE
STREET ADDRESS 4824 PARKWAY PLAZA BLUD	(The private well owner must be an individual who <u>personally</u> abandons his/her residential well in accordance with ISA NCAC 2C .0113.)
City or Town State Zip Code	TIM THOMAS PRINTED NAME OF PERSON ABANDONING THE WELL
(704) - 775 - 2980 Area code - Phone number	



1. WELL CONTRACTOR:

TIM THOMAS
Well Contractor (Individual) Name

FORT MILL
City or Town S

2. WELL INFORMATION:

Recovery Injection Other (list use)

SITE WELL ID # (if applicable)___

STATE WELL PERMIT # (if applicable)

COUNTY WELL PERMIT # (if applicable)

Municipal/Public Industrial/Commercial

Injection Irrigation

SAE DACCO, TNC.
Well Contractor Company Name

STREET ADDRESS 9088 NORTHFIELD DR

State

WELL ABANDONMENT RECORD

North Carolina Department of Environment and Natural Resources- Division of Water Quality

WELL CONTRACTOR CERTIFICATION #

Tw- 42

Residential

Agricultural

TIO	N# 2012		
5.	WELL DETAILS:	•	
	a. Total Depth: /6	ft. Diameter:	<u> </u>
	b. Water Level (Below Measuri		* *
	Measuring point is	ft. above land	surface.
6.	CASING:	Length	Diameter
	a. Casing Depth (if known): b. Casing Removed:	ft. ft.	in.
7.	DISINFECTION: O.	6	
	(Amount of 65%-75% calcium	hypochlorite use	d)
8.	SEALING MATERIAL:		
	Neat Cement	Sand Cen	nent
	Cementlb. Watergal.		lb. gal.
	Bentonite		
	Bentonite lb. Type: Slurry Pollets & Water C ga	I.	
	<u>Other</u>		
	Type material		Marie and the second of the se
	Amount		
9.	EXPLAIN METHOD OF EM BORCHOLE WAS FR WELL WAS ZEMON	LED WITH C	
10.	WELL DIAGRAM: Draw a de form showing total depth, depth in the well, gravel interval, intertypes of fill materials used.	and diameter of	screens (if any) remaining forations, and depths and
11.	DATE WELL ABANDONED_	11-71	
WITH	HEREBY CERTIFY THAT THIS WE I 15A NCAC 2C, WELL CONSTRUC RECORD HAS BEEN PROVIDED T	TION STANDARD	S, AND THAT A COPY OF
SIGN	ATURE OF CERTIFIED WELL CO	ONTRACTOR	10/13/09 DATE
(The print acco	ATURE OF PRIVATE WELL OWT or water well owner must be an individual ordance with 15A NCAC 2C .0113.) M. THOMA STED NAME OF PERSON ABANDO	al who <u>personaliv</u> ab	andons his/her residential well



North Carolina Department of Environment and Natural Resources- Division of Water Quality

well contractor certification # 20/2

- WEED CO.	THE COLOR CERTIFIE		
1. WELL CONTRACTOR:		5.	WELL DETAILS:
TIM THOMAS			a. Total Depth: ZO ft. Diameter: 1 in.
Well Contractor (Individual) Name			b. Water Level (Below Measuring Point): ft.
SAEDACCO TNC	·		Measuring point isfl. above land surface.
Wen Contractor Company Name	_		
STREET ADDRESS 9088 N		6.	CASING: Length Diameter
FORT MILL SC City or Town State	29707 Zip Code		a. Casing Depth (if known): ft. in. b. Casing Removed: ft. in.
(893) 548-2180	•		
Area code - Phone number		7.	DISINFECTION: 0.16 G
2. WELL INFORMATION:			(Amount of 65%-75% calcium hypochlorite used)
SITE WELL ID # (if applicable)	<u> 44 – ث</u>	8.	SEALING MATERIAL:
STATE WELL PERMIT # (if applicable)			Neat Cement Sand Cement
COUNTY WELL PERMIT # (if applicable)			Cement lb. Cement lb. Water gal. Water gal.
DWQ or OTHER PERMIT # (if applicable)_			Bentonite
WELL USE (Circle applicable use): Monit Municipal/Public Industrial/Commer Recovery Injection Irrigation Other (list use)	cial Agricultural		Bentonite b. Type: Slurry Pellets W Water gal.
			Other
3. WELL LOCATION:			Type material
COUNTY CNSLOW QUADRANGLE			
NEAREST TOWN: TACK SONVIC	CE, NC		Amount
CAMP JOHNSON			
(Street/Road Name, Number, Community, Subdivi	sion, Lot No., Parcel, Zip Code)	9.	EXPLAIN METHOD OF EMPLACEMENT OF MATERIAL:
TOPOGRAPHIC / LAND SETTING: Slope Valley Flat Ridge Other			BORCHOLE WAS FILLED WITH CHIPS AFTER WELL WAS ZEMOUED
Slope Valley Flat Ridge Other	 		agec was removed
	May be in degrees,		
LATITUDE	minutes, seconds, or in a		
LONGITUDE	decimal format	10.	
Latitude/longitude source: GPS (Location of well must be shown on a U attached to this form if not using GPS.	· ·		form showing total depth, depth and diameter of screens (if any) remaining in the well, gravel interval, intervals of casing perforations, and depths and types of fill materials used.
a. FACILITY- The name of the business where the w (If a residential well,kip 4a; complete 4b, well own		11.	DATE WELL ABANDONED 7/29/09
FACILITY ID #(if applicable)		iDO	HEREBY CERTIFY THAT THIS WELL WAS ABANDONED IN ACCORDANCE
NAME OF FACILITY CAMP JC	H0200	with	H 15A NCAC 2C, WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF RECORD HAS BEEN PROVIDED TO THE WELL OWNER.
STREET ADDRESS TAUL Segurition NC City or Town State		Inis	
JACKSCHULLE NC		===	10/13/C°)
	Zip Code	SIG	NATURE OF CERTIFIED WELL CONTRACTOR DATE
b. CONTACT PERSON/WELL OWNER:	(12 an il i		
NAME KETZI HAUREZE C	14211 HICC		NATURE OF PRIVATE WELL OWNER ABANDONING THE WELL DATE private well owner must be an individual who personally abandons his/her residential well
STREET ADDRESS 4824 PARK		in acc	cordance with 15A NCAC 2C .0113.)
CHAWU77 NC City or Town State		7	THOMA STEED NAME OF PERSON ABANDONING THE WELL
City or Town State	Zip Code	PRIN	TIED NAME OF PERSON ABANDONING THE WELL
(704)- 975-2980	_		
Area code - Phone number	-		



North Carolina Department of Environment and Natural Resources-Division of Water Quality

well contractor certification # 2012

TI ELECOT	TRACTOR CERTIFIC	27.110	· · · · · · · · · · · · · · · · · · ·	
1. WELL CONTRACTOR:		5.	WELL DETAILS:	
TIM THOMAS			a. Total Depth: 17	ft. Diameter: 1 in.
Well Contractor (Individual) Name			b. Water Level (Below Measur	
SAEDACCO, INC.			Measuring point is	ft. above land surface.
Well Contractor Company Name	_			
STREET ADDRESS 9088 NO		6.	CASING:	Length Diameter
FORT MILL SC City of Town State	29707		a. Casing Depth (if known):	ft in.
(89), 548 ZIBO	216 6000		b. Casing Removed:	ftin.
Area code - Phone number		7.	disinfection: O.	5 16
2. WELL INFORMATION:	,		(Amount of 65%-75% calcium	n hypochlorite used)
SITE WELL ID # (if applicable)	<u>0 - 45</u>	8.	SEALING MATERIAL:	
STATE WELL PERMIT # (if applicable)			Neat Cement	Sand Cement
COUNTY WELL PERMIT # (if applicable)	1		Cement lb. Water gal.	Cementlb. Watergal.
DWQ or OTHER PERMIT # (if applicable)_			<u>Bentonite</u>	
WELL USE (Circle applicable use): Monite Municipal/Public Industrial/Commer Recovery Injection Irrigation Other (list use)	cial Agricultural		Bentonite lb. Type: Slurry Pellets X Water 7 ge	ai.
			Other	
3. WELL LOCATION:			Type material	- 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1
COUNTY ONSLOW QUADRANGLE				· · ·
NEAREST TOWN: TACKSONVIC	CE, NC		Amount	<u> </u>
CAMP JOHNSON	warm war			
(Street/Road Name, Number, Community, Subdivis	sion, Lot No., Parcel, Zip Code)	9.		IPLACEMENT OF MATERIAL:
TOPOGRAPHIC / LAND SETTING:]]		ILLED WITH CHIPS AFTER
Slope Valley Flat Ridge Other			well was zema	76()
	May be in degrees,			
LATITUDE	minutes, seconds, or in a decimal format	!		
LONGITUDE		10.		ctailed sketch of the well on the back of this
Latitude/longitude source: GPS	Topographic map			h and diameter of screens (if any) remaining
(Location of well must be shown on a U attached to this form if not using GPS.			types of fill materials used.	rvals of casing perforations, and depths and
a. FACILITY- The name of the business where the w (If a residential well, ckip 4a; complete 4b, well owner	ell is located. Complete 4a and4b.	11.	DATE WELL ABANDONED_	7/29/09
FACILITY ID #(if applicable)	in since in the single	! [_	
NAME OF FACILITY CAMP JE	~020H			ELL WAS ABANDONED IN ACCORDANCE CTION STANDARDS, AND THAT A COPY OF
STREET ADDRESS TACK SCIENCE NC City or Town State		THIS	RECORD HAS BEEN PROVIDED T	TO THE WELL OWNER.
JAYKSCHULLE NC				10/13/09
	Zip Code	SIGN	ATURE OF CERTIFIED WELL C	ONTRACTOR DATE
b. CONTACT PERSON/WELL OWNER:				
NAME KERT HALROSE, C.	421n HILL	SIGN	ATURE OF PRIVATE WELL OW	NER ABANDONING THE WELL DATE ual who personally abandons his/her residential well
STREET ADDRESS 4824 PARKL	SAY PLAZA BLUD	in acc	ordance with ISA NCAC 2C .0113.)	
CHARLUTTE NC City or Town State		1 7	M THOMAS	ONING THE WELL
City or Town State	Zip Code	PRIN	ITED NAME OF PERSON ABAND	ORING THE WELL
(704)- 975-298C)				
Area code - Phone number				·



North Carolina Department of Environment and Natural Resources- Division of Water Quality

**Next Connector (Individual) Name **SAE DACC TAC Well Connector Company Name **SAE DACC TAC Well Connector Company Name **STREET ADDRESS **SAE DACC TAC Well Connector Company Name **STREET ADDRESS **SAE DATE **SAE DACC TAC Well Connector Company Name **STREET ADDRESS **SAE NOOP THE PERMIT # (if applicable) **STATE WELL ID # (if applicable) **STREET ADDRESS **SAE Well CATTY DACC TO PERMIT SO COMPANION SIDE & STREET ADDRESS **SAE THE WELL DO WERE **STREET ADDRESS **SAE THE WELL OWNER **STREET ADDRESS **SAE THE WELL OWNER ABANDON'N THE WELL OWNER **STREET ADDRESS **SAE THE WELL OWNER ABANDON'N THE WELL **STREET ADDRESS **SAE THE WELL OWNER ABANDON'N THE WELL **STREET ADDRESS **SAE THE WELL OWNER ABANDON'N THE WELL **STREET ADDRESS **SAE THE WELL OWNER ABANDON'N THE WELL **STREET ADDRESS **SAE THE WELL OWNER ABANDON'N THE WELL **STREET ADDRESS **SAE THE WELL OWNER ABANDON'N THE WELL	WELL CONTRACTOR CERTIFIC	cation# 2012
Measuring point is	I. WELL CONTRACTOR:	
Measuring point is	TIM THOMAS	a. Total Depth: 17 ft. Diameter: 1 in.
## CASING: Length Diameter ## DISINFECTION:		<u> </u>
## CASING: Length Diameter ## DISINFECTION:	Well Contractor Company Name	Measuring point is ft. above land surface.
STATE WELL ID # (if applicable) TCO - 46	STREET ADDRESS 9088 NORTHFIELD DR	6. CASING: Length Diameter
STATE WELL ID # (if applicable) TCO - 46	FORT MILL SC 29707	
REALLING MATERIAL: **STATE WELL ID# (if applicable)** **COUNTY WELL PERMIT # (if applicable)** **DWG or OTHER PERMIT# (if applicable)** **DWG or OTHER PERMIT# (if applicable)** **DWG or OTHER PERMIT# (if applicable)** **WELL USE (Circle applicable)** **Water** **SEALING MATERIAL:** **Neat Cement** bb. Cement**	City or Town State Zip Code	b. Casing Removed:ftin.
AMELL INFORMATION: STEWELL ID F (if applicable) TWO 46		7. disinfection: 0.666
8. SEALING MATERIAL: STATE WELL PERMIT # (if applicable) COUNTY WELL PERMIT # (if applicable) DWQ or OTHER PERMIT # (if applicable) WELL USE (Circle applicable use):	WELL INFORMATION:	(Amount of 65%-75% calcium hypochlorite used)
COUNTY WELL PERMIT # (if applicable) DWQ or OTHER PERMIT # (if applicable) WELL USE (Circle applicable use):	SITE WELL ID # (if applicable) 700 - 46	8. SEALING MATERIAL:
Water gal. Water	STATE WELL PERMIT # (if applicable)	Neat Cement Sand Cement
WELL USE (Circle applicable use): Monitoring Municipal/Public industrial/Commercial Agricultural Agricultural Recovery Injection Intrigation Other (list use) 3. WELL LOCATION: COUNTY CASCLOW QUADRANGLE NAME NEAREST TOWN: Jack Scowlet Name Nearest Town:	COUNTY WELL PERMIT # (if applieable)	Cement lb. Cement lb. Water gal. Water gal.
Municipal/Public Industrial/Commercial Agricultural Recovery Injection Irrigation Other (list use) 3. WELL LOCATION: COUNTY CNSLCW QUADRANGLE NAME NEAREST TOWN: TACK SONVICE NC CAMD TOHAS CON (StreeVRoad Name, Number, Community, Subdivision, Lot No., Parcel, Zip Code) TOPOGRAPHIC / LAND SETTING: Slope Valley Flat Ridge Other (Circle appropriate setting) LATTUDE May be in degrees, minutes, seconds, or in a decimal format (Circle appropriate setting) LATTUDE Latitude/Iongitude source: GPS Topographic map (Location of well must be shown on a USGS topo map and attached to this form if not using GPS.) (If a residential well, Xip As, complete 4s, well owner information only.) FACILITY ID #(if applicable) NAME OF FACILITY CAMP TOTHINGS CON City or Town State Zip Code CONTACT PERSON/WELL OWNER: NAME LOZI HACK COL CAMP POTENTIAL CONTACTOR DATE STREET ADDRESS Water 17 gal. Other Type: Slurry Pellets K. Water 17 gal. Other Type material Amount 10. WELL DIAGRAM: Draw a detailed skeech of the well on the back of this form showing total depth, depth and diameter of screens (if any) remaining in the well, gravel interval, intervals of casing perforations, and depths and types of fill materials used. 11. DATE WELL ABANDONED 1/25/C9 11. DATE WELL OWNER. SIGNATURE OF PRIVATE WELL OWNER. SIGNATURE OF PRIVATE WELL OWNER ABANDONING THE WELL DATE (The private well owner must be an individual wite genoming bandons bigher residential well an accordance with 15th NCAC 2C, 01125) TIME TOWN State Zip Code TYPE: Slurry Pellets K. Water 17 gal. Manunt Amount Amount 10. WELL DIAGRAM: Draw a detailed skeech of the well on the back of this form showing total depth, depth and diameter of screens (if any) remaining in the well, gravel interval, intervals of casing perforations, and depths and types of fill materials used. 11. DATE WELL BANDONED 1/25/C9 11. DATE WELL ABANDONED 1/25/	DWQ or OTHER PERMIT # (if applicable)	<u>Bentonite</u>
Recovery Injection Irrigation Other (list use) 3. WELL LOCATION: COUNTY CNSLCW QUADRANGLE NAME NEAREST TOWN: TACK SOND (Street/Road Name, Number, Community, Subdivision, Lot No., Parcel, Zip Code) (Street/Road Name, Number, Community, Subdivision, Lot No., Parcel, Zip Code) (Circle appropriate setting) LATITUDE LONGITUDE L		
Other (list use) 3. WELL LOCATION: COUNTY CNELCED QUADRANGLE NAME NEAREST TOWN: TOLL SCOVILLE, NO (StreeVRoad Name, Number, Community, Subdivision, Lot No., Parcel, Zip Code) (StreeVRoad Name, Number, Community, Subdivision, Lot No., Parcel, Zip Code) (Circle appropriate setting) LATITUDE LATITUDE LONGITUDE LONGITUDE LATITUDE LATITUDE May be in degrees, minutes, seconds, or in a decimal forms to community of the seconds, or in a decimal forms the community of the seconds, or in a decimal forms the community of the seconds of well must be shown on a USGS topo map and attached to this form if not using GPS) LATLITY ID #(if applicable) NAME OF FACILITY OF #(if applicable) NAME OF FACILITY OF MICHICAL OF THE SCO STREET ADDRESS TALK SCINCLE NO CITY OF TOWN State Zip Code CONTACT PERSON/WELL OWNER: NAME LOTE HALL OWNER: NAME LOTE HALL SCINCLE NO CITY OF TOWN State Zip Code CONTACT PERSON/WELL OWNER: NAME LOTE HALL SCINCLE NO CITY OF TOWN State Zip Code CONTACT PERSON/WELL OWNER: NAME LOTE HALL SCINCLE NO CITY OF TOWN State Zip Code CONTACT PERSON/WELL OWNER: NAME LOTE HALL SCINCLE NO CITY ON State Zip Code THIS RECORD HAS BEEN PROVIDED TO THE WELL OWNER ABANDONING THE WELL SIGNATURE OF PERSON ABANDONING THE WELL THE PRIVATE WELL OWNER ABANDONING THE WELL THE PRIVATE WELL OWNER ABANDONING THE WELL SIGNATURE OF PERSON ABANDONING THE WELL THE PRIVATE WELL OWNER ABANDONING THE WELL FINITED NAME OF PERSON ABANDONING THE WELL FINITED	· · · · · · · · · · · · · · · · · · ·	Type: Slurry Pellets X
3. WELL LOCATION: COUNTY CNSCLCD QUADRANGLE NAME NEAREST TOWN: TOUS COV (StreeVRoad Name, Number, Community, Subdivision, Lot No., Parcel, Zip Code) (StreeVRoad Name, Number, Community, Subdivision, Lot No., Parcel, Zip Code) (Circle appropriate setting) LATHTUDE LATHTUDE LONGITUDE LONGITUDE LATHTUDE May be in degrees, minutes, seconds, or in a decimal forms (Circle appropriate setting) LATHTUDE LONGITUDE LATHTUDE May be in degrees, minutes, seconds, or in a decimal forms (Circle appropriate setting) LATHTUDE LONGITUDE LATHTUDE May be in degrees, minutes, seconds, or in a decimal forms (Circle appropriate setting) LATHTUDE LONGITUDE LATHTUDE May be in degrees, minutes, seconds, or in a decimal forms (Circle appropriate setting) LATHTUDE LONGITUDE LATHTUDE May be in degrees, minutes, seconds, or in a decimal forms (Circle appropriate setting) 10. WELL DIAGRAM: Draw a detailed sketch of the well on the back of this form showing total depth, depth and diameter of screens (if any) remaining in the well, gravel interval, intervals of casing perforations, and depths and types of fill materials used. 11. DATE WELL ABANDONED 729 11. DATE WELL ABANDONED 729 11. DATE WELL ABANDONED 129 SIGNATURE OF CERTIFIED WELL CONSTRUCTION STANDARDS, ANDARDS, ANDA	Other (list use)	
NEAREST TOWN: TOUNISTELL NAME NEAREST TOWN: TOUNISTELL NAME (Street/Road Name, Number, Community, Subdivision, Lot No., Parcel, Zip Code) TOPOGRAPHIC / LAND SETTING: Slope Valley Flat Ridge Other (Circle appropriate setting) LATITUDE May be in degrees, minutes, seconds, or in a decimal format (correct propriate setting) LATITUDE Latitude/longitude source: GPS Topographic map (Location of well must be shown on a USGS topo map and attached to this form if not using GPS.) FACILITY: The name of the business where the well is located. Complete 4a and4b. (If a residential well, sich size complete 4b, well owner information only.) FACILITY ID #(if applicable) NAME OF FACILITY: CAMP TOTHISCO STREET ADDRESS TALE CONTACT PERSONWELL OWNER: NAME FORD HARRING DRAW CHEMP HILL STREET ADDRESS CONTACT PERSONWELL OWNER: NAME FORD HARRING DRAW CHEMP HILL STREET ADDRESS CONTACT PERSONWELL OWNER: NAME FORD HARRING DRAW OF FRISON ABANDONING THE WELL SIGNATURE OF PRIVATE WELL OWNER ABANDONING THE WELL SIGNATURE OF PRIVATE WELL OWNER ABANDONING THE WELL TIME THANKS CO. (2013.) TIME THANKS CO. (2013.) FRINTED NAME OF PERSON ABANDONING THE WELL PRINTED NAME OF PERSON ABANDONING THE WELL STREET ADDRESS CONTACT PERSON STREET WELL SIGNATURE OF PERSON ABANDONING THE WELL SIGNATURE OF PERSON ABANDONING THE WELL STREET ADDRESS TOPHIS RECORD ABANDONING THE WELL SIGNATURE OF PERSON ABANDONING THE WELL STREET ADDRESS TOPHIS RECORD ABANDONING THE WELL SIGNATURE OF PERSON ABANDONING THE WELL SIGNATURE OF PERSON ABANDONING THE WELL FRINTED NAME OF PERSON ABANDONING THE WELL	3. WELL LOCATION:	
NEAREST TOWN: TACKSONVICE NC (Stree/Road Name, Number, Community, Subdivision, Lot No., Parcel, Zip Code) TOPOGRAPHIC / LAND SETTING: Slope Valley Flat Ridge Other (Circle appropriate setting) LATITUDE LATITUDE LONGITUDE LATITUDE LONGITUDE LATITUDE LONGITUDE LONGITUDE LATITUDE LONGITUDE LONGITU	COUNTY CNSLOW QUADRANGLE NAME	Type material
(StreetRoad Name, Number, Community, Subdivision, Lot No., Parcel, Zip Code) TOPOGRAPHIC (LAND SETTING: Slope Valley Flat Ridge Other (Circle appropriate setting) LATITUDE		Amount
TOPOGRAPHIC / LAND SETTING: Slope Valley Flat Ridge Other (Circle appropriate setting) May be in degrees, minutes, seconds, or in a decimal format LONGITUDE Latitude/longitude source: GPS Topographic map (Location of well must be shown on a USGS topo map and attached to this form if not using GPS.) A. FACILITY: The name of the business where the well is located. Complete 4a and4b. (If a residential well, skip 4a; complete 4b, well owner information only.) FACILITY ID #(if applicable) NAME OF FACILITY CAMP JOHNSCO STREET ADDRESS CONTACT PERSONWELL OWNER: NAME FOR I HARROLL OWNER ABANDONING THE WELL DATE (The private well owner must be an individual who personally abandons his/her residential well in accordance with 15A NACA 2C, 01(13) TIM THOMA (PRINTED NAME OF PERSON ABANDONING THE WELL PRINTED NAME OF PERSON ABANDONING THE WELL		
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Circle appropriate setting		
May be in degrees, minutes, seconds, or in a decimal format Latitude/longitude source: GPS Topographic map (Location of well must be shown on a USGS topo map and attached to this form if not using GPS.) a. FACILITY: The name of the business where the well is located. Complete 4a and4b. (If a residential well, xip 4a, complete 4b, well owner information only.) FACILITY ID #(if applicable) NAME OF FACILITY CAMP JCHOSCO STREET ADDRESS JALICONTICE City or Town State Zip Code CONTACT PERSON/WELL OWNER: NAME FOR I HAUROUS CHEMP HILL STREET ADDRESS 4824 PARKING PLANT BROWNER City or Town State Zip Code 775 79 86. PRINTED NAME OF PERSON ABANDONING THE WELL TIME THOSE AND OF PERSON ABANDONING THE WELL PRINTED NAME OF PERSON ABANDONING THE WELL	Slope Valley Flat Ridge Other	WELL WAS ZEMOVED
LATITUDE LONGITUDE Latitude/longitude source: GPS Topographic map (Location of well must be shown on a USGS topo map and attached to this form if not using GPS.) a. FACILITY. The name of the business where the well is located. Complete 4a and4b. (If a residential well, sit, 4a; complete 4b, well owner information only.) FACILITY ID #(if applicable) NAME OF FACILITY CAMP JOHNSCN STREET ADDRESS JALISCNALL STATE TOWN State Zip Code CONTACT PERSON/WELL OWNER: NAME LOTAL HARROLE (HZM HICL) STREET ADDRESS JALISCNALL STATE WELL OWNER ABANDONING THE WELL DATE STREET ADDRESS JALISCNALL STATE WELL OWNER ABANDONING THE WELL DATE STREET ADDRESS JALISCNALL STATE OF CERTIFIED WELL CONTRACTOR DATE SIGNATURE OF PRIVATE WELL OWNER ABANDONING THE WELL DATE (The private well owner must be an individual who personally abandons his/her residential well in accordance with 15A NCAC 2C. 0113.) TIM THOMAS PRINTED NAME OF PERSON ABANDONING THE WELL	(Cricic appropriate setting)	
Latitude/longitude source: GPS Topographic map (Location of well must be shown on a USGS topo map and attached to this form if not using GPS.) a. FACILITY: The name of the business where the well is located. Complete 4a and4b. (If a residential well, skip 4a; complete 4b, well owner information only.) FACILITY ID #(if applicable) NAME OF FACILITY City or Town State Zip Code CONTACT PERSON/WELL OWNER: NAME STREET ADDRESS CHARLOGY (HAM HICL) STREET ADDRESS CITY (HAM HICL) SIGNATURE OF PRIVATE WELL OWNER ABANDONING THE WELL DATE THO HICL) SIGNATURE OF PRIVATE WELL OWNER ABANDONING THE WELL THE PRIVATE WELL OWNER ABANDONING THE WELL SIGNATURE OF PRIVATE WELL OWNER ABANDONING THE WELL THE PRIVATE WELL OWNER ABANDONING THE WELL THE PRIVATE WELL OWNER ABANDONING THE WELL THE PRIVATE WELL OWNER ABANDONING THE WELL FRINTED NAME OF PERSON ABANDONING THE WELL PRINTED NAME OF PERSON ABANDONING THE WELL THE PRIVATE WELL SIGNATURE OF PRIVATE WELL OWNER ABANDONING THE WELL FRINTED NAME OF PERSON ABANDONING THE WELL PRINTED NAME OF PERSON ABANDONING THE WELL THE PRIVATE WELL THE OWNER ABANDONING THE WELL SIGNATURE OF PRIVATE WELL OWNER ABANDONING THE WELL SIGNATURE OF PRIVATE WELL OWNER ABANDONING THE WELL FRINTED NAME OF PERSON ABANDONING THE WELL PRINTED NAME OF PERSON ABANDONING THE WELL		
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types of fill materials used. 11. DATE WELL ABANDONED TO HEREBY CERTIFY THAT THIS WELL WAS ABANDONED IN ACCORDANCE WITH 15A NCAC 2C, WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF THIS RECORD HAS BEEN PROVIDED TO THE WELL OWNER. 12. Contact Person/Well owner: NAME LOTE HACKER (HZM HICL) STREET ADDRESS NAME LOTE HACKER (HZM HICL) STREET ADDRESS LHAWLUTTE NO. City or Town State Zip Code (HZM HICL) City or Town State Zip Code TIM THOMA (PRINTED NAME OF PERSON ABANDONING THE WELL PRINTED NAME OF PERSON ABANDONING THE WELL TIM THOMA (PRINTED NAME OF PERSON ABANDONING THE WELL PRINTED NAME OF PERSON ABANDONING THE WELL TIM THOMA (PRINTED NAME OF PERSON ABANDONING THE WELL		11
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FACILITY ID #(if applicable) NAME OF FACILITY CAMP JOHNSON STREET ADDRESS JACKSON CONTACT PERSON/WELL OWNER: NAME ACTAL HARROLE CHAMBILL STREET ADDRESS 4824 PARKENAY PLAZA BUD City or Town State Zip Code TIME THAT THIS WELL WAS ABANDONED IN ACCORDANCE WITH 15A NCAC 2C, WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF THIS RECORD HAS BEEN PROVIDED TO THE WELL OWNER. SIGNATURE OF CERTIFIED WELL CONTRACTOR DATE SIGNATURE OF PRIVATE WELL OWNER ABANDONING THE WELL DATE (The private well owner must be an individual who personally abandons his/her residential well in accordance with 15A NCAC 2C .0113.) TIME THOMA SET THAT THIS WELL WAS ABANDONED IN ACCORDANCE WITH 15A NCAC 2C, WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF THIS RECORD HAS BEEN PROVIDED TO THE WELL OWNER. SIGNATURE OF PRIVATE WELL OWNER ABANDONING THE WELL DATE (The private well owner must be an individual who personally abandons his/her residential well in accordance with 15A NCAC 2C .0113.) TIME THOMA SET THAT THIS WELL WAS ABANDONED IN ACCORDANCE WITH 15A NCAC 2C, WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF THIS RECORD HAS BEEN PROVIDED TO THE WELL OWNER. SIGNATURE OF PRIVATE WELL OWNER ABANDONING THE WELL DATE (The private well owner must be an individual who personally abandons his/her residential well in accordance with 15A NCAC 2C .0113.) TIME THAT THIS MELL WAS ABANDONED IN ACCORDANCE WITH 15A NCAC 2C, WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF THIS RECORD HAS BEEN PROVIDED TO THE WELL OWNER.	a. FACILITY- The name of the business where the well is located. Complete 4a and4b.	7/20/09
NAME OF FACILITY CAMP JOHNSON STREET ADDRESS JACKSCHOLLE SC City or Town State Zip Code NAME LOTAL HALRONG CHEMPTIC STREET ADDRESS 4824 PARKLOAY PLAZA RUD City or Town State Zip Code TIME THAT IN WELL WAS ABANDONED AND THAT A COPY OF THIS RECORD HAS BEEN PROVIDED TO THE WELL OWNER. WITH ISA NCAC 2C, WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF THIS RECORD HAS BEEN PROVIDED TO THE WELL OWNER. SIGNATURE OF CERTIFIED WELL CONTRACTOR DATE SIGNATURE OF PRIVATE WELL OWNER ABANDONING THE WELL DATE (The private well owner must be an individual who personally abandons his/her residential well in accordance with ISA NCAC 2C .0113.) TIM THOMA (PRINTED NAME OF PERSON ABANDONING THE WELL PRINTED NAME OF PERSON ABANDONING THE WELL	TACH ITV ID 400 the black	
STREET ADDRESS TACK SCHOOL SIZE City or Town State Zip Code CONTACT PERSON/WELL OWNER: NAME Y-CT2T 1-1/ACRC26 CH2M HICL STREET ADDRESS 4824 PARKE 34 PA	NAME OF FACILITY CAMP JOHNSON	WITH 15A NCAC 2C, WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF
TACK SCHOOL FOR State Zip Code O. CONTACT PERSON/WELL OWNER: NAME Y-CT2T 1-1ACCR C26 C1121/M 1/1C STREET ADDRESS 4824 PARKEL AY PLAZA 18CO City or Town State Zip Code (704) - 975 - 298C	STREET ADDRESS	THIS RECORD HAS BEEN PROVIDED TO THE WELL OWNER.
City or Town State Zip Code SIGNATURE OF CERTIFIED WELL CONTRACTOR SIGNATURE OF CERTIFIED WELL CONTRACTOR SIGNATURE OF CERTIFIED WELL CONTRACTOR SIGNATURE OF PRIVATE WELL OWNER ABANDONING THE WELL DATE (The private well owner must be an individual who personally abandons his/her residential well in accordance with 15A NCAC 2C .0113.) CHARLOTTE INC. City or Town State Zip Code (704) - 975 - 29 & C	JACKSCHULLE NC	10/13/09
NAME K-CT2T 1-1ACCRCDE CH2M HICL STREET ADDRESS 4824 PARKWAY PLAZA BLUD CHARLOTTC NC City or Town State Zip Code (704) - 975-2980	·	SIGNATURE OF CENTIFIED WELL CONTRACTOR DATE
STREET ADDRESS 4824 PARKLUAY PLAZA BLCD (The private well owner must be an individual who personally abandons his/her residential well in accordance with 15A NCAC 2C .0113.) TIM THOMAS PRINTED NAME OF PERSON ABANDONING THE WELL (704) - 975 - 2980	:	
CHAVECOTTE INC. City or Town State Zip Code (704) - 975 - 29 & C.	NAME F-CIZE F-IACKCIZE CITCULTUCE	(The private well owner must be an individual who personally abandons his/her residential well
(704)- 975-798C		
(704)- 975-798C	CHARLUTTC NC	PRINTED NAME OF PERSON ABANDONING THE WELL
	Area code - Phone number	



2012

North Carolina Department of Environment and Natural Resources-Division of Water Quality

1. WELL CONTRACTOR:	5. WELL DETAILS:
TIM THOMAS	a. Total Depth: 16 ft. Diameter: 1 in.
Well Contractor (Individual) Name	b. Water Level (Below Measuring Point): ft.
Well Contractor Company Name	Measuring point is ft. above land surface.
STREET ADDRESS <u>GC & & NOR7HA</u>	. 11
FORT MILL SC 29" City of Town State Zip Co	a. Casing Depth (if known): ft in.
City or Town State Zip Co	de b. Casing Removed: ft. in.
Rea code - Phone number	7. DISINFECTION: 0.1616
2. WELL INFORMATION:	(Amount of 65%-75% calcium hypochlorite used)
SITE WELL ID # (if applicable)	8. SEALING MATERIAL:
STATE WELL PERMIT # (if applicable)	! !
COUNTY WELL PERMIT # (if applicable)	Cement lb. Cement lb. Water gal. Water gal.
DWQ or OTHER PERMIT # (if applicable)	<u>Bentonite</u>
WELL USE (Circle applicable use): Monitoring Municipal/Public Industrial/Commercial Recovery Injection Irrigation Other (list use)	Type: Slurry_Pellets\(\frac{\zeta}{2}\)
	Other
3. WELL LOCATION:	Type material
COUNTY CNSLOW QUADRANGLE NAME	-
NEAREST TOWN: TACKSONVICE, N	Amount
	Paral Zin Colo
(Street/Road Name, Number, Community, Subdivision, Lot No	9. EXPLAIN METHOD OF EMPLACEMENT OF MATERIAL: RURCHOLE WAS FILED WAY CHIPS AFTER
TOPOGRAPHIC / LAND SETTING: Slope Valley Flat Ridge Other	
(Circle appropriate setting)	
LATTIUDE minutes.	n degrees, seconds, or in a
LONGITUDEdecimal	10. WELL DIAGRAM: Draw a detailed sketch of the well on the back of this
	graphic map form showing total depth, depth and diameter of screens (if any) remaining in the well, gravel interval, intervals of casing perforations, and depths and
(Location of well must be shown on a USGS topo attached to this form if not using GPS.)	types of fill materials used.
4a. FACILITY- The name of the business where the well is locate (If a residential well, Jkip 4a; complete 4b, well owner informati	
FACILITY ID #(if applicable)	I DO HEREBY CERTIFY THAT THIS WELL WAS ABANDONED IN ACCORDANCE
NAME OF FACILITY CAMP JOHNSO	WITH 15A NCAC 2C, WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF
STREET ADDRESS	THIS RECORD HAS BEEN PROVIDED TO THE WELL OWNER.
STREET ADDRESS OF ACIA SCIENCE CONTROL STATE City or Town State Zip	10/13/C°)
	Code SIGNATURE OF CERTIFIED WELL CONTRACTOR DATE
4b. CONTACT PERSON/WELL OWNER:	
NAME KERT HAURURE CHEM	
STREET ADDRESS 4824 PARKLUAY PL	in accordance with 15A NCAC 2C .0113.)
City or Town State Zip Code	TIM THOMAS PRINTED NAME OF PERSON ABANDONING THE WELL
(704) - 975 - 2980) Area code - Phone number	



ABANDONMENT RECORD

North Carolina Department of Environment and Natural Resources- Division of Water Quality

WELL CONTRACTOR CERTIFIC	ation # <u>201</u> 2
1. WELL CONTRACTOR:	5. WELL DETAILS:
TIM THOMAS Well Contractor (Individual) Name	a. Total Depth: 16 ft. Diameter: 1 in. b. Water Level (Below Measuring Point): 1t.
SAE DACCO, TNC. Well Contractor Company Name	Measuring point is ft. above land surface.
STREET ADDRESS 9088 NORTHFIELD DR.	6. CASING: Length Diameter
FORT MILL SC 29707 City or Town State Zip Code	a. Casing Depth (if known): ft in.
City or Town State Zip Code	b. Casing Removed: ft. in.
(803) - 548 - 2180 Area code - Phone number	7. DISINFECTION: 0.1616
2. WELL INFORMATION:	(Amount of 65%-75% calcium hypochlorite used)
SITE WELL ID # (if applicable) Tw - 48	8. SEALING MATERIAL:
STATE WELL PERMIT # (if applicable)	Neat Cement Sand Cement
COUNTY WELL PERMIT # (if applicable)	Cement lb. Cement lb. Water gal. Water gal.
DWQ or OTHER PERMIT # (if applicable)	Bentonite
WELL USE (Circle applicable use): Monitoring Residential Municipal/Public Industrial/Commercial Agricultural Recovery Injection Irrigation	Bentonitelb. Type: Slurry Pellets X
Other (list use)	Water O. G. gal.
3. WELL LOCATION:	Other .
COUNTY CNSCOW) QUADRANGLE NAME	Type material
NEAREST TOWN: JACKSONVICE NC	Amount
CAMP JOHNSON	
(Street/Road Name, Number, Community, Subdivision, Lot No., Parcel, Zip Code)	9. EXPLAIN METHOD OF EMPLACEMENT OF MATERIAL:
TOPOGRAPHIC / LAND SETTING: Slope Valley Flat Ridge Other (Circle appropriate setting)	BORCHOLE WAS FILLED WITH CHIPS AFTER WELL WAS ZEMWED
LATITUDE May be in degrees,	
LATITUDE minutes, seconds, or in a decimal format	10. WELL DIAGRAM: Draw a detailed sketch of the well on the back of this
Latitude/longitude source: GPS Topographic map (Location of well must be shown on a USGS topo map and attached to this form if not using GPS.)	form showing total depth, depth and diameter of screens (if any) remaining in the well, gravel interval, intervals of casing perforations, and depths and types of fill materials used.
4a. FACILITY- The name of the business where the well is located. Complete 4a and 4b. (If a residential well, skip 4a; complete 4b, well owner information only.)	11. DATE WELL ABANDONED 7/29/09
NAME OF FACILITY CAMP TO the SC.	I DO HEREBY CERTIFY THAT THIS WELL WAS ABANDONED IN ACCORDANCE
	WITH 15A NCAC 2C, WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF THIS RECORD HAS BEEN PROVIDED TO THE WELL OWNER.
STREET ADDRESS	SCONATURE OF CERTIFIED WELL CONTRACTOR
City or Town State Zip Code	SIGNATURE OF CERTIFIED WELL CONTRACTOR DATE
4b. CONTACT PERSON/WELL OWNER:	
NAME KERT HAUREDE, CHEMHILL	SIGNATURE OF PRIVATE WELL OWNER ABANDONING THE WELL DATE (The private well owner must be an individual who personally abandons his/her residential well
STREET ADDRESS 4524 PARKWAY PLAZA BLUD	in accordance with 15A NCAC 2C .0113.)
City or Town State Zip Code	TIM THOMAS PRINTED NAME OF PERSON ABANDONING THE WELL
(7e4) - 775 - 29 8 C Area code - Phone number	



WELL CONTRACTOR CERTIFIC	CATION # 20/2
1. WELL CONTRACTOR:	5. WELL DETAILS:
TIM THOMAS Well Contractor (Individual) Name	a. Total Depth: 16 ft. Diameter: 1 in. b. Water Level (Below Measuring Point): ft.
SAE DACCO, TNC. Well Contractor Company Name	Measuring point isft. above land surface.
STREET ADDRESS 9088 NORTHFIELD DR	6. CASING: Length Diameter
FORT MILL SC 29707 City of Town State Zip Code (803) - 548 2180	a. Casing Depth (if known): b. Casing Removed: ft. in. in.
Area code - Phone number	7. DISINFECTION: 0.16(5
2. WELL INFORMATION:	(Amount of 65%-75% calcium hypochlorite used)
SITE WELL ID # (if applicable) 700 - 49	8. SEALING MATERIAL:
STATE WELL PERMIT # (if applicable)	Neat Cement Sand Cement
COUNTY WELL PERMIT # (if applicable)	Cement lb. Cement lb. Water gal. Water gal.
DWQ or OTHER PERMIT # (if applicable)	Bentonite
WELL USE (Circle applicable use): (Monitoring) Residential Municipal/Public Industrial/Commercial Agricultural Recovery Injection Irrigation	Bentonite lb, Type: Slurry Pellets A Water C gal,
Other (list use)	Other
3. WELL LOCATION:	Type material
COUNTY CNSLOW QUADRANGLE NAME	
NEAREST TOWN: TALKSONVILLE, NC	Amount
CAMD JOHNSON	
(Street/Road Name, Number, Community, Subdivision, Lot No., Parcel, Zip Code) TOPOGRAPHIC / LAND SETTING:	9. EXPLAIN METHOD OF EMPLACEMENT OF MATERIAL: BORCHOLE WAS FILED WITH CHIPS AFTER
Slope Valley Flat Ridge Other (Circle appropriate setting)	WELL WAS ZEMOVED
LATITUDE May be in degrees, minutes, seconds, or in a	
LONGITUDE decimal format	10. WELL DIAGRAM: Draw a detailed sketch of the well on the back of this
Latitude/longitude source: GPS Topographic map (Location of well must be shown on a USGS topo map and attached to this form if not using GPS.)	form showing total depth, depth and diameter of screens (if any) remaining in the well, gravel interval, intervals of casing perforations, and depths and types of fill materials used.
a. FACILITY-The name of the business where the well is located. Complete 4a and4b. (If a residential well, skip 4a; complete 4b, well owner information only.)	11. DATE WELL ABANDONED 7/29/09
FACILITY ID #(if applicable)	I DO HEREBY CERTIFY THAT THIS WELL WAS ABANDONED IN ACCORDANCE
NAME OF FACILITY CAMP JOHNSON	WITH 15A NCAC 2C, WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF THIS RECORD HAS BEEN PROVIDED TO THE WELL OWNER.
STREET ADDRESS	11/2/09
STREET ADDRESS TALK SCHOOL CO Side City or Town State Zip Code	SIGNATURE OF CERTIFIED WELL CONTRACTOR DATE
b. CONTACT PERSON/WELL OWNER:	
NAME KERZI HALLBERGE CHZM HILL	SIGNATURE OF PRIVATE WELL OWNER ABANDONING THE WELL DATE
STREET ADDRESS 4824 PARKWAY PLAZA BLUD	(The private well owner must be an individual who <u>personally</u> abandons his/her residential well in accordance with 15A NCAC 2C .0113.)
CHARLU77E NC City or Town State Zip Code	TIM THOMAS PRINTED NAME OF PERSON ABANDONING THE WELL
i i	I MINIED HAME OF FERSON ABANDONING THE WELL
(704)- 775-7980 Area code - Phone number	



PROJECT NUMBER

377812 WELL NUMBER

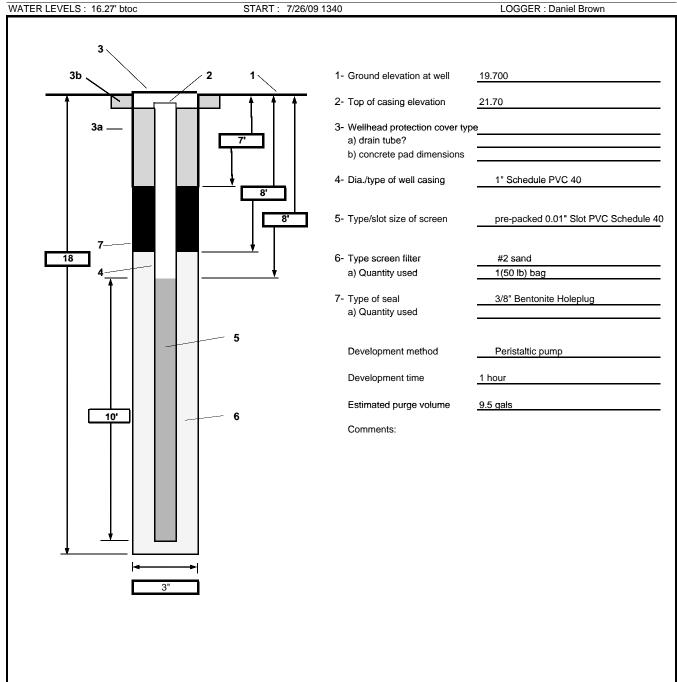
CJCA-TW01 SHEET 1 OF 1

WELL COMPLETION DIAGRAM

PROJECT: CT0-011 LOCATION: CJCA Camp Lejeune, NC

DRILLING CONTRACTOR: SAEDACCO

DRILLING METHOD AND EQUIPMENT USED: DPT





PROJECT NUMBER

377812 WELL NUMBER

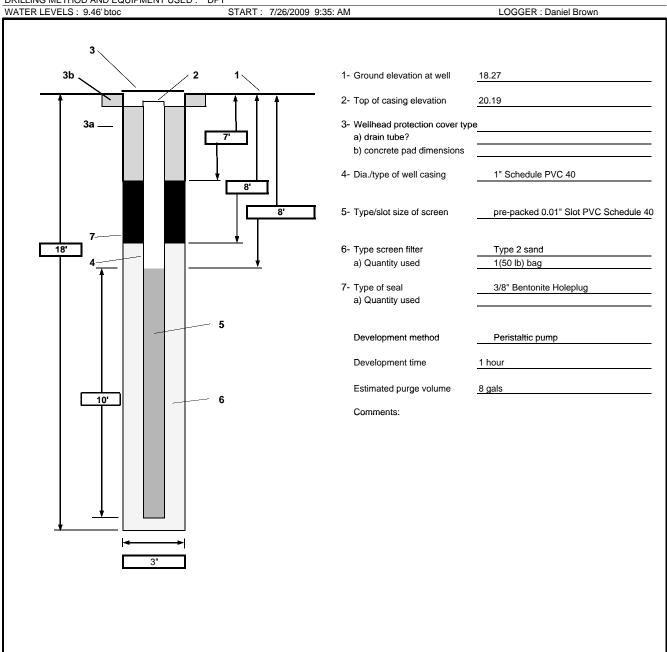
CJCA-TW02 SHEET 1 OF 1

WELL COMPLETION DIAGRAM

PROJECT: CT0-011 LOCATION: CJCA Camp Lejeune, NC

DRILLING CONTRACTOR: SAEDACCO

DRILLING METHOD AND EQUIPMENT USED: DPT





PROJECT NUMBER

377812 WELL NUMBER

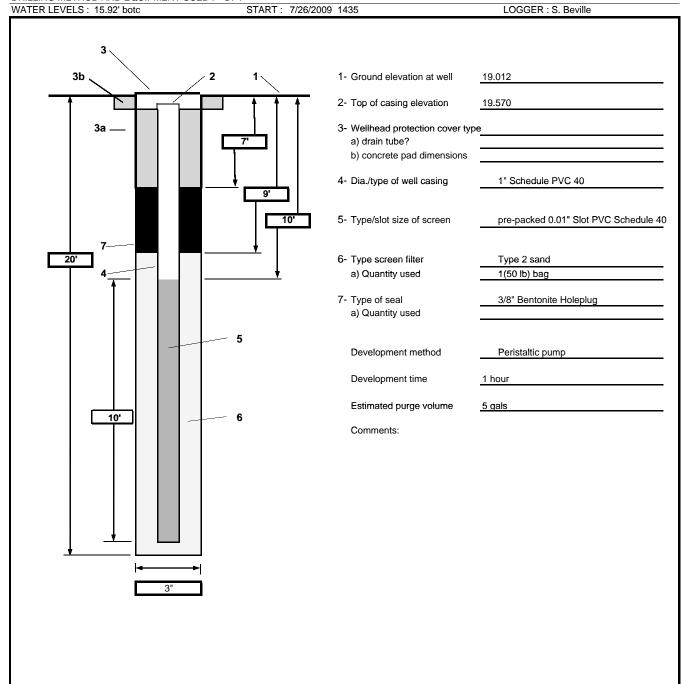
CJCA-TW03 SHEET 1 OF 1

WELL COMPLETION DIAGRAM

PROJECT: CT0-011 LOCATION: CJCA Camp Lejeune, NC

DRILLING CONTRACTOR: SAEDACCO

DRILLING METHOD AND EQUIPMENT USED: DPT





PROJECT NUMBER WELL NUMBER 377812 CJCA-TW04 SHEET 1 OF 1

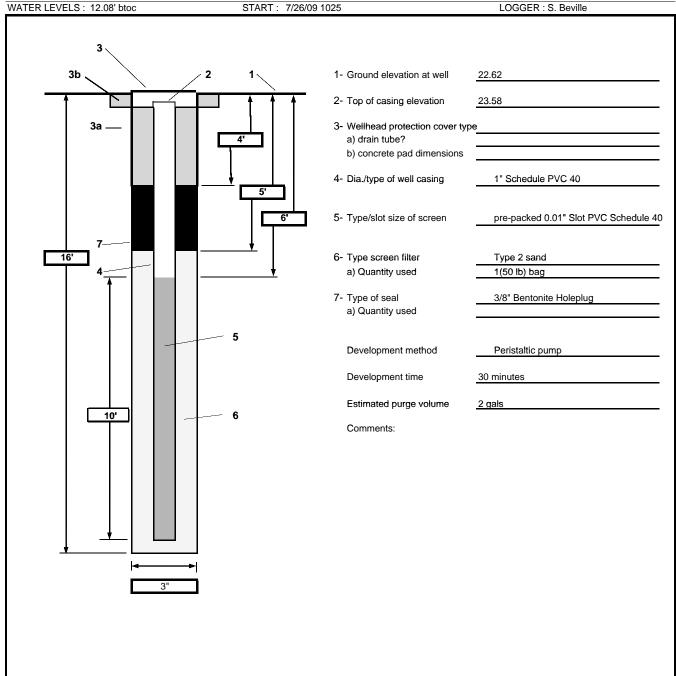
WELL COMPLETION DIAGRAM

PROJECT: CT0-011 LOCATION: CJCA Camp Lejeune, NC

DRILLING CONTRACTOR: SAEDACCO

DRILLING METHOD AND EQUIPMENT USED: DPT

START: 7/26/09 1025





PROJECT NUMBER WELL NUMBER 377812 CJCA-TW05 SHEET 1 OF 1

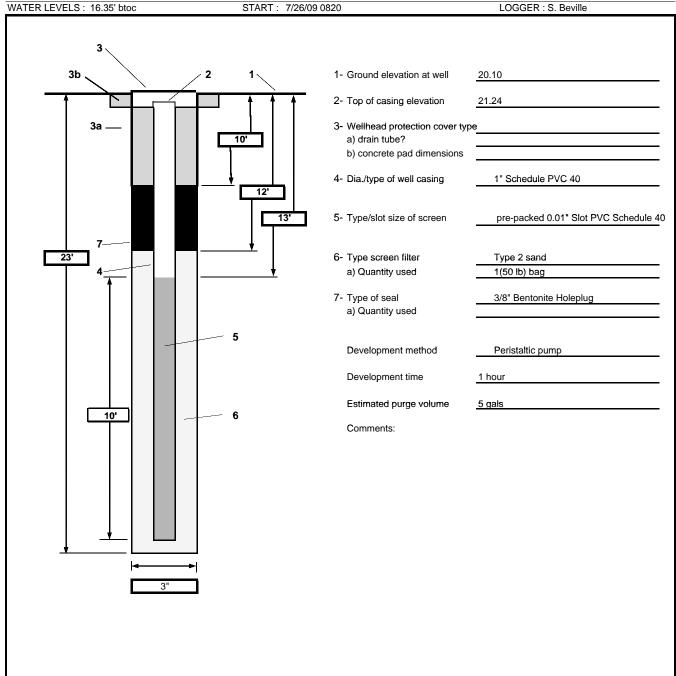
WELL COMPLETION DIAGRAM

PROJECT: CT0-011 LOCATION: CJCA Camp Lejeune, NC

DRILLING CONTRACTOR: SAEDACCO

DRILLING METHOD AND EQUIPMENT USED: DPT

START: 7/26/09 0820





PROJECT NUMBER

377812 WELL NUMBER

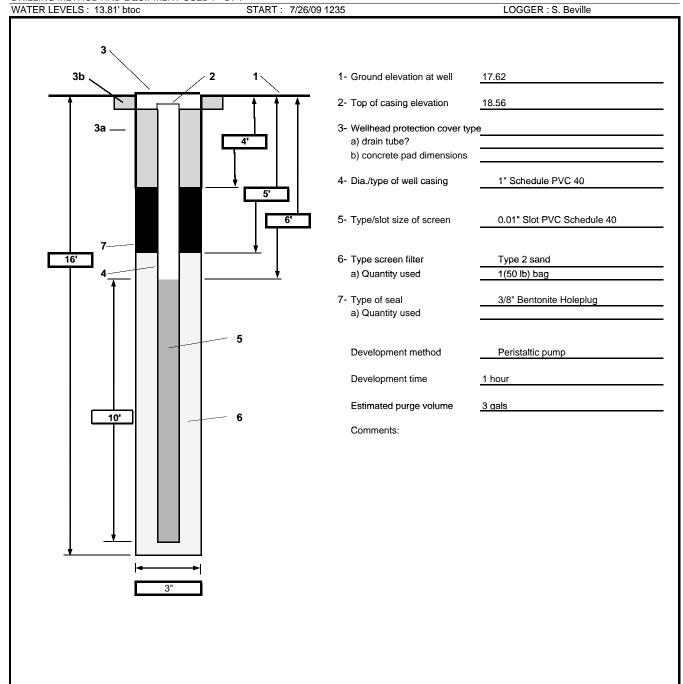
CJCA-TW06 SHEET 1 OF 1

WELL COMPLETION DIAGRAM

PROJECT: CT0-011 LOCATION: CJCA Camp Lejeune, NC

DRILLING CONTRACTOR: SAEDACCO

DRILLING METHOD AND EQUIPMENT USED: DPT





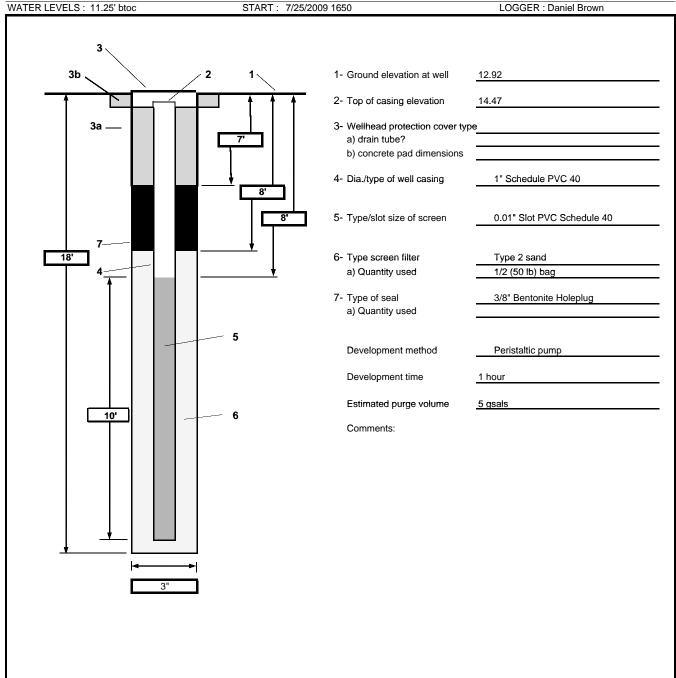
PROJECT NUMBER WELL NUMBER 377812 CJCA-TW08 SHEET 1 OF 1

WELL COMPLETION DIAGRAM

PROJECT: CT0-011 LOCATION: CJCA Camp Lejeune, NC

DRILLING CONTRACTOR: SAEDACCO

DRILLING METHOD AND EQUIPMENT USED: DPT





PROJECT NUMBER WELL NUMBER 377812 CJCA-TW09 SHEET 1 OF 1

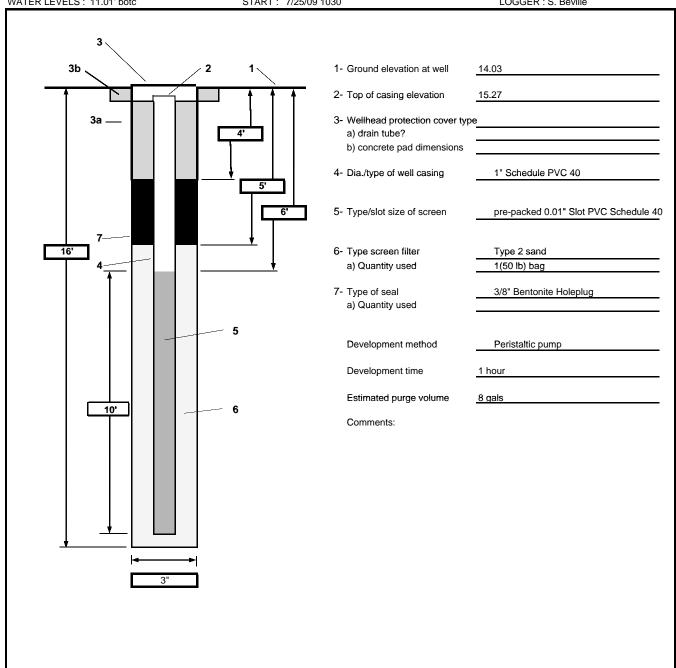
WELL COMPLETION DIAGRAM

PROJECT: CT0-011 LOCATION: CJCA Camp Lejeune, NC

DRILLING CONTRACTOR: SAEDACCO

DRILLING METHOD AND EQUIPMENT USED: DPT

START: 7/25/09 1030 LOGGER : S. Beville WATER LEVELS: 11.01' botc





PROJECT NUMBER WELL NUMBER 377812 CJCA-TW10 SHEET 1 OF 1

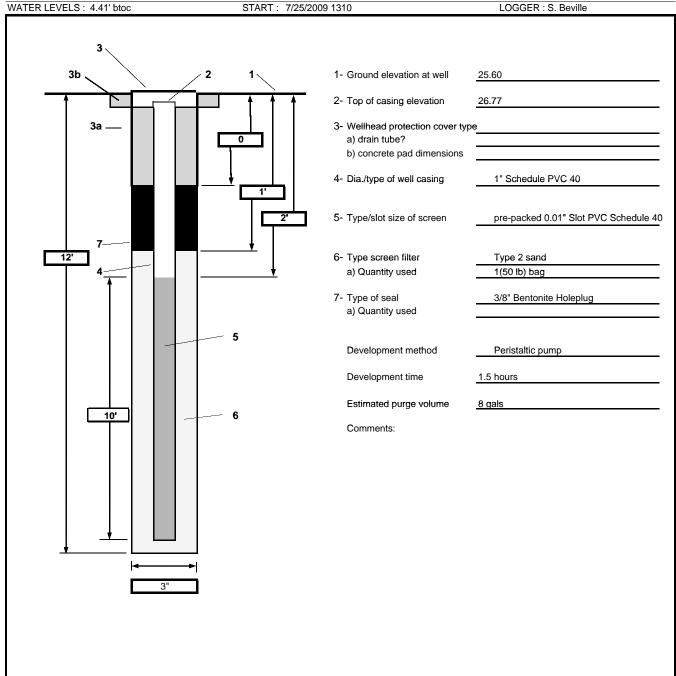
WELL COMPLETION DIAGRAM

PROJECT: CT0-011 LOCATION: CJCA Camp Lejeune, NC

DRILLING CONTRACTOR: SAEDACCO

DRILLING METHOD AND EQUIPMENT USED: DPT

START: 7/25/2009 1310





PROJECT NUMBER WELL NUMBER 377812 CJCA-TW11 SHEET 1 OF 1

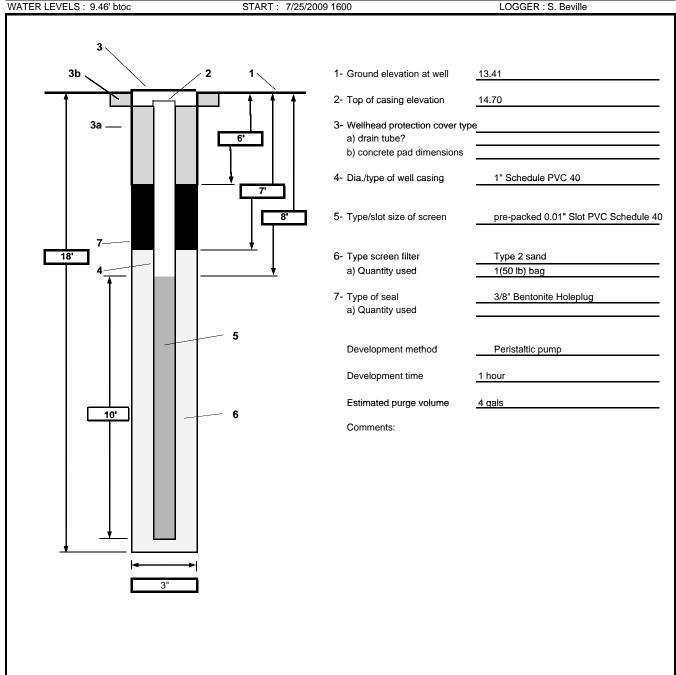
WELL COMPLETION DIAGRAM

PROJECT: CT0-011 LOCATION: CJCA Camp Lejeune, NC

DRILLING CONTRACTOR: SAEDACCO

DRILLING METHOD AND EQUIPMENT USED: DPT

START: 7/25/2009 1600 LOGGER : S. Beville





PROJECT NUMBER WELL NUMBER 377812 CJCA-TW12 SHEET 1

WELL COMPLETION DIAGRAM

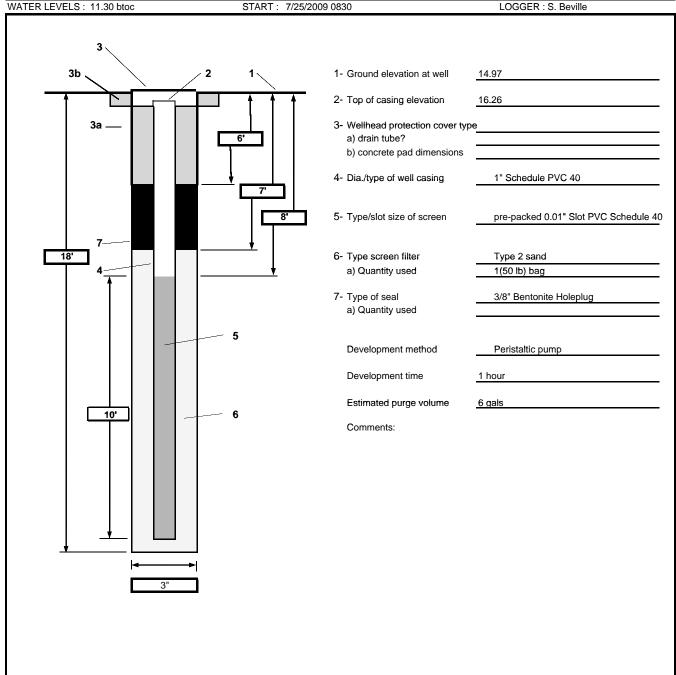
OF 1

PROJECT: CT0-011 LOCATION: CJCA Camp Lejeune, NC

DRILLING CONTRACTOR: SAEDACCO

DRILLING METHOD AND EQUIPMENT USED: DPT

START: 7/25/2009 0830 LOGGER : S. Beville





PROJECT NUMBER WELL NUMBER 377812 CJCA-TW13 SHEET 1 OF 1

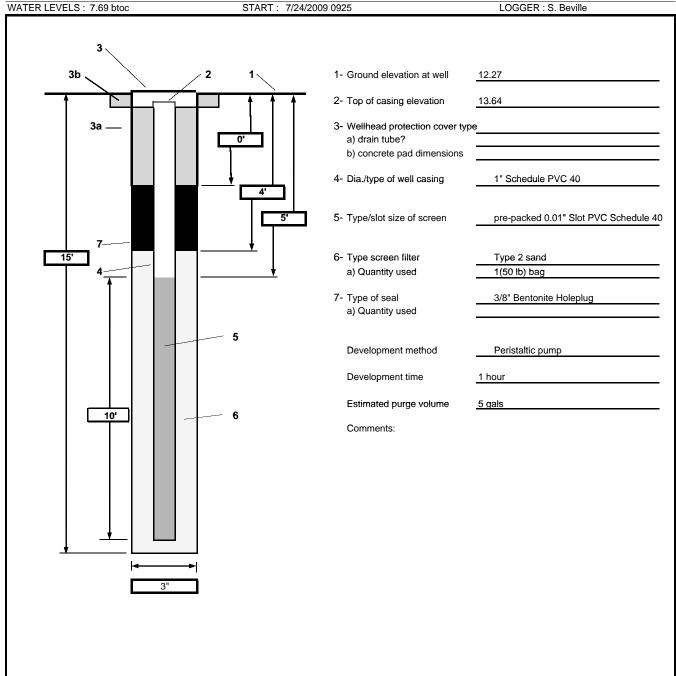
WELL COMPLETION DIAGRAM

PROJECT: CT0-011 LOCATION: CJCA Camp Lejeune, NC

DRILLING CONTRACTOR: SAEDACCO

DRILLING METHOD AND EQUIPMENT USED: DPT

START: 7/24/2009 0925





PROJECT NUMBER WELL NUMBER 377812 CJCA-TW14 SHEET 1 OF 1

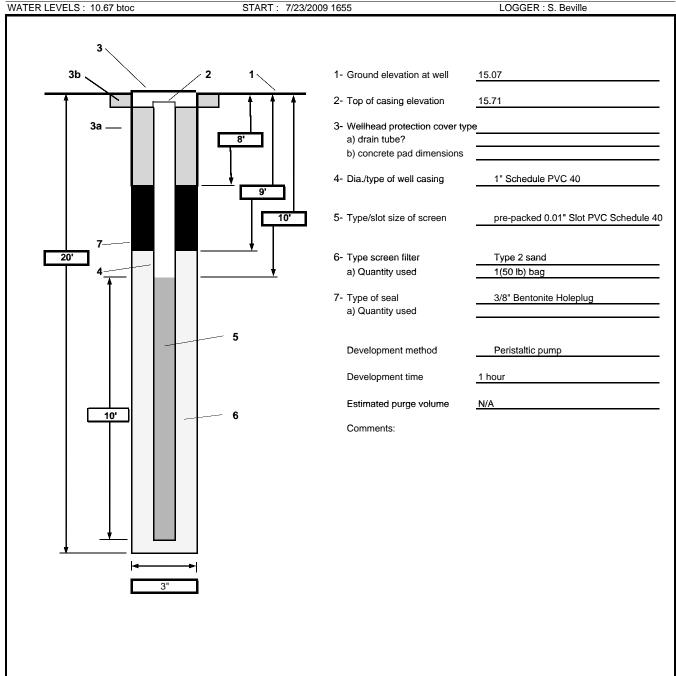
WELL COMPLETION DIAGRAM

PROJECT: CT0-011 LOCATION: CJCA Camp Lejeune, NC

DRILLING CONTRACTOR: SAEDACCO

DRILLING METHOD AND EQUIPMENT USED: DPT

START: 7/23/2009 1655





PROJECT NUMBER WELL NUMBER 377812 CJCA-TW15 SHEET 1 OF 1

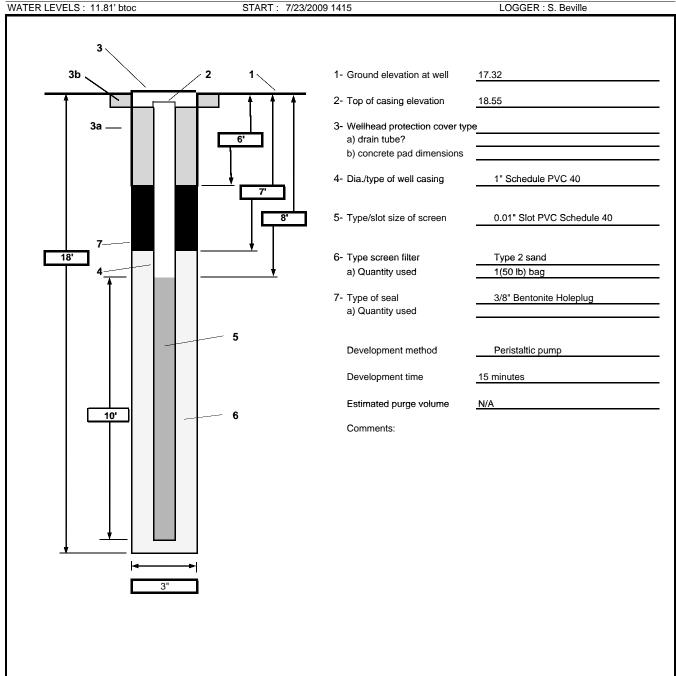
WELL COMPLETION DIAGRAM

PROJECT: CT0-011 LOCATION: CJCA Camp Lejeune, NC

DRILLING CONTRACTOR: SAEDACCO

DRILLING METHOD AND EQUIPMENT USED: DPT

START: 7/23/2009 1415





PROJECT NUMBER WELL NUMBER 377812 CJCA-TW16 SHEET 1 OF 1

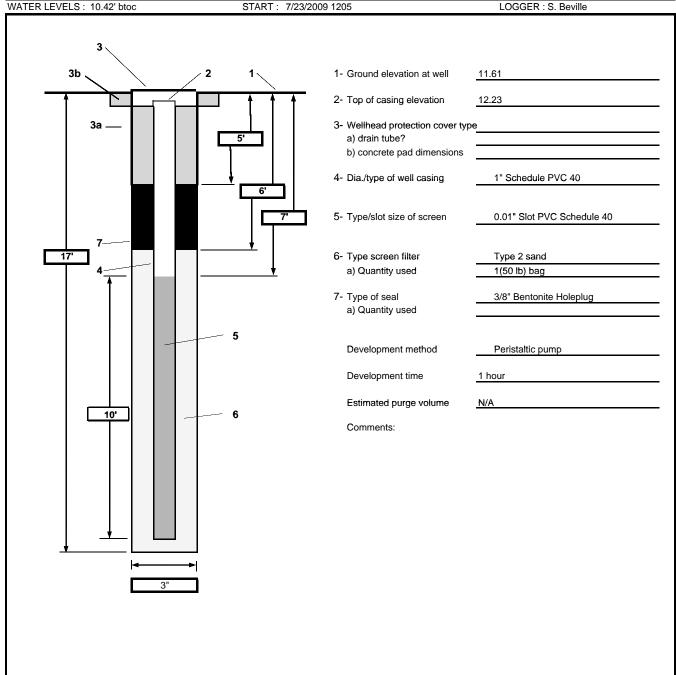
WELL COMPLETION DIAGRAM

PROJECT: CT0-011 LOCATION: CJCA Camp Lejeune, NC

DRILLING CONTRACTOR: SAEDACCO

DRILLING METHOD AND EQUIPMENT USED: DPT

START: 7/23/2009 1205 LOGGER : S. Beville





PROJECT NUMBER WELL NUMBER 377812 CJCA-TW17 SHEET 1 OF 1

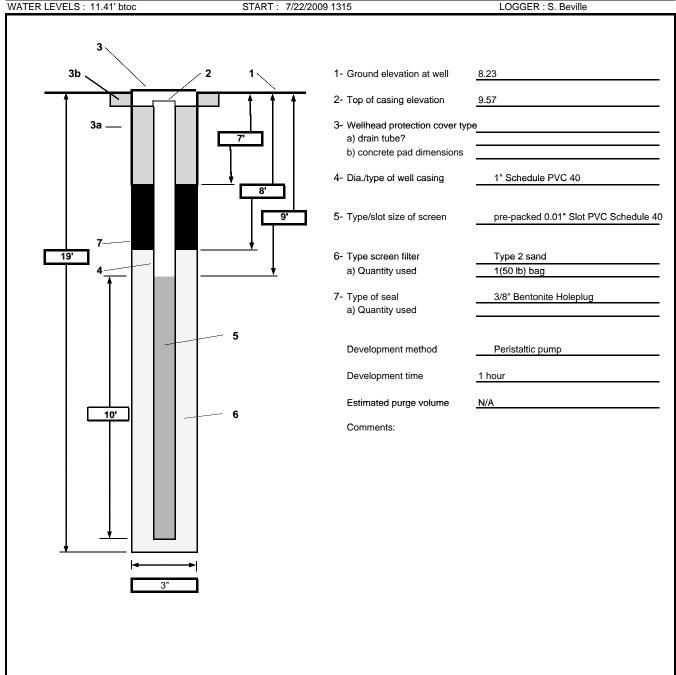
WELL COMPLETION DIAGRAM

PROJECT: CT0-011 LOCATION: CJCA Camp Lejeune, NC

DRILLING CONTRACTOR: SAEDACCO

DRILLING METHOD AND EQUIPMENT USED: DPT

START: 7/22/2009 1315 LOGGER : S. Beville





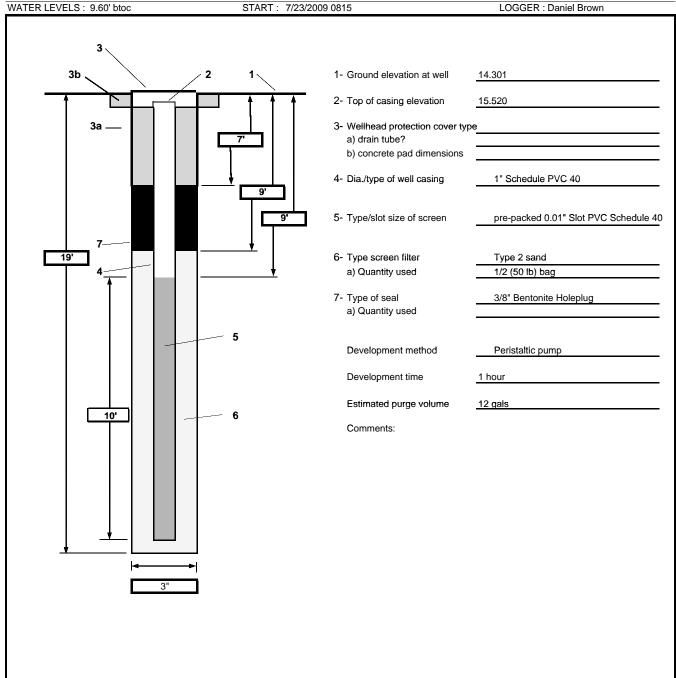
PROJECT NUMBER WELL NUMBER 377812 CJCA-TW18 SHEET 1 OF 1

WELL COMPLETION DIAGRAM

PROJECT: CT0-011 LOCATION: CJCA Camp Lejeune, NC

DRILLING CONTRACTOR: SAEDACCO

DRILLING METHOD AND EQUIPMENT USED: DPT





PROJECT NUMBER

377812 WELL NUMBER

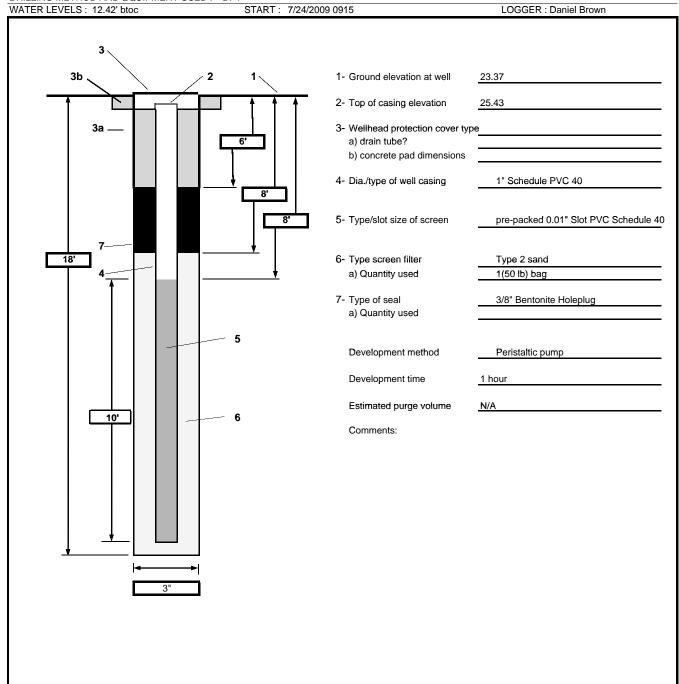
CJCA-TW19 SHEET 1 OF 1

WELL COMPLETION DIAGRAM

PROJECT: CT0-011 LOCATION: CJCA Camp Lejeune, NC

DRILLING CONTRACTOR: SAEDACCO

DRILLING METHOD AND EQUIPMENT USED: DPT





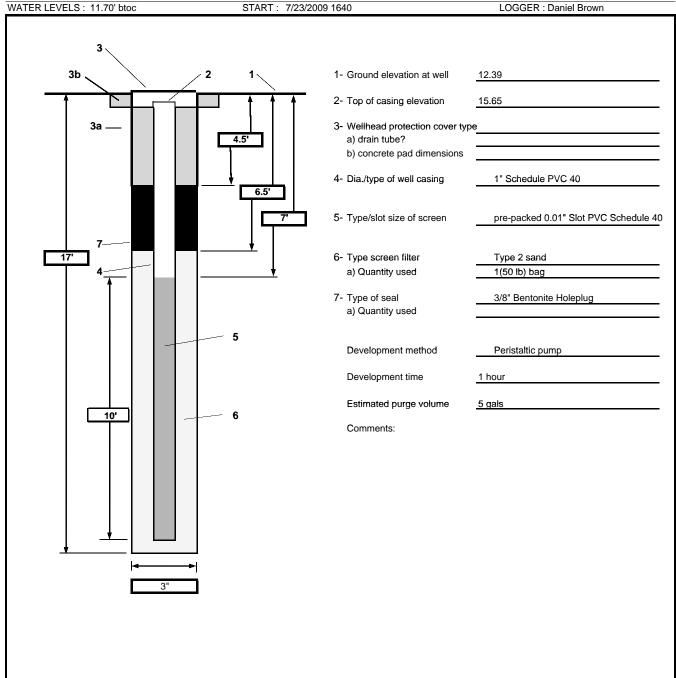
PROJECT NUMBER WELL NUMBER 377812 CJCA-TW20 SHEET 1 OF 1

WELL COMPLETION DIAGRAM

PROJECT: CT0-011 LOCATION: CJCA Camp Lejeune, NC

DRILLING CONTRACTOR: SAEDACCO

DRILLING METHOD AND EQUIPMENT USED: DPT





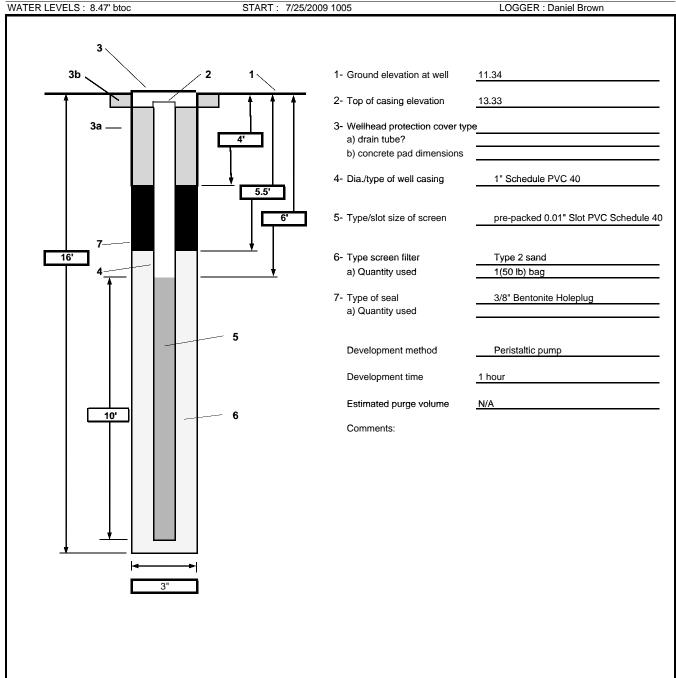
PROJECT NUMBER WELL NUMBER 377812 CJCA-TW21 SHEET 1 OF 1

WELL COMPLETION DIAGRAM

PROJECT: CT0-011 LOCATION: CJCA Camp Lejeune, NC

DRILLING CONTRACTOR: SAEDACCO

DRILLING METHOD AND EQUIPMENT USED: DPT





PROJECT NUMBER WELL NUMBER 377812 CJCA-TW22 SHEET 1 OF 1

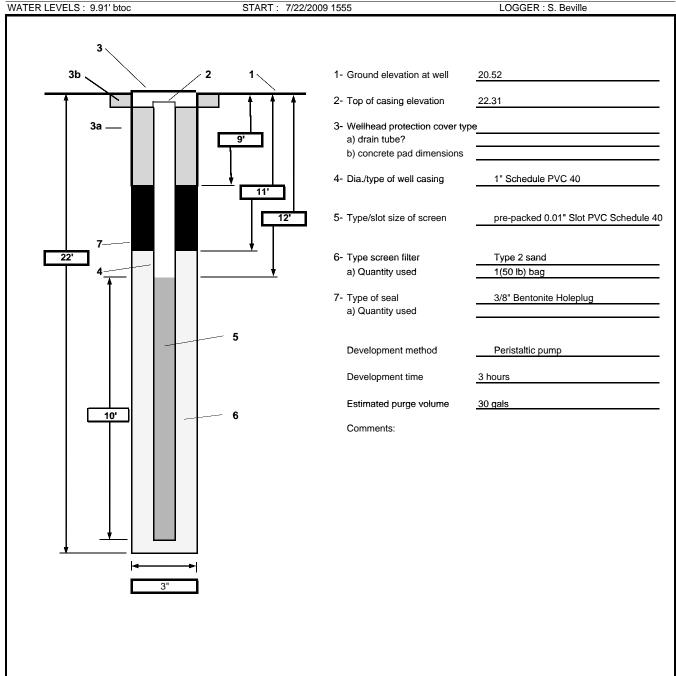
WELL COMPLETION DIAGRAM

PROJECT: CT0-011 LOCATION: CJCA Camp Lejeune, NC

DRILLING CONTRACTOR: SAEDACCO

DRILLING METHOD AND EQUIPMENT USED: DPT

START: 7/22/2009 1555





PROJECT NUMBER

377812 WELL NUMBER

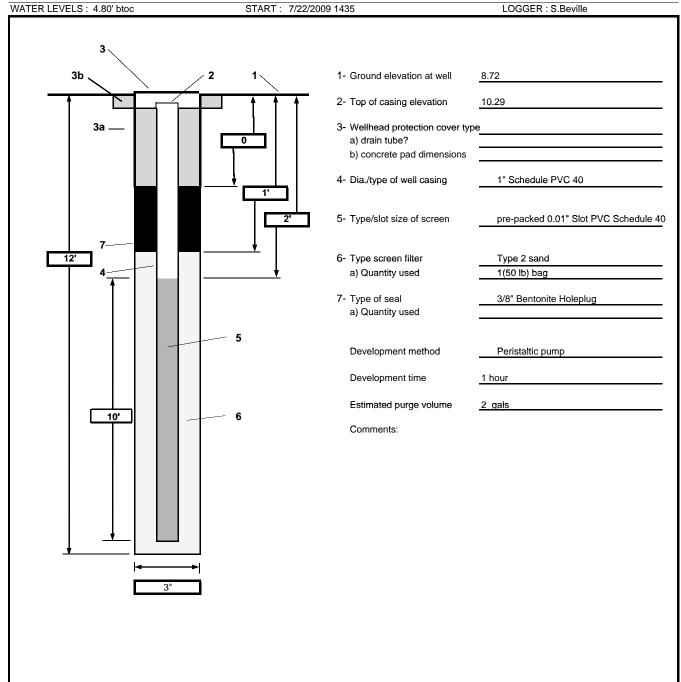
CJCA-TW23 SHEET 1 OF 1

WELL COMPLETION DIAGRAM

PROJECT: CT0-011 LOCATION: CJCA Camp Lejeune, NC

DRILLING CONTRACTOR: SAEDACCO

DRILLING METHOD AND EQUIPMENT USED: DPT





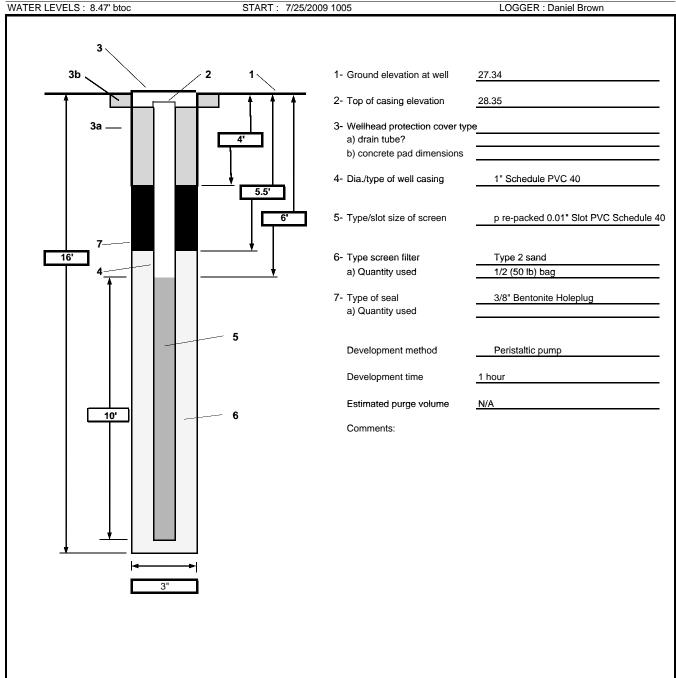
PROJECT NUMBER WELL NUMBER 377812 CJCA-TW24 SHEET 1 OF 1

WELL COMPLETION DIAGRAM

PROJECT: CT0-011 LOCATION: CJCA Camp Lejeune, NC

DRILLING CONTRACTOR: SAEDACCO

DRILLING METHOD AND EQUIPMENT USED: DPT





PROJECT NUMBER

377812 WELL NUMBER

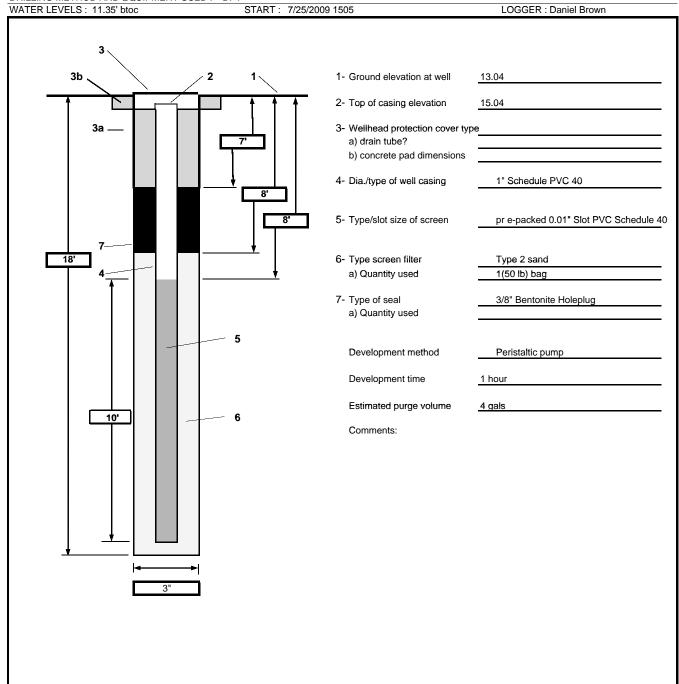
CJCA-TW25 SHEET 1 OF 1

WELL COMPLETION DIAGRAM

PROJECT: CT0-011 LOCATION: CJCA Camp Lejeune, NC

DRILLING CONTRACTOR: SAEDACCO

DRILLING METHOD AND EQUIPMENT USED: DPT





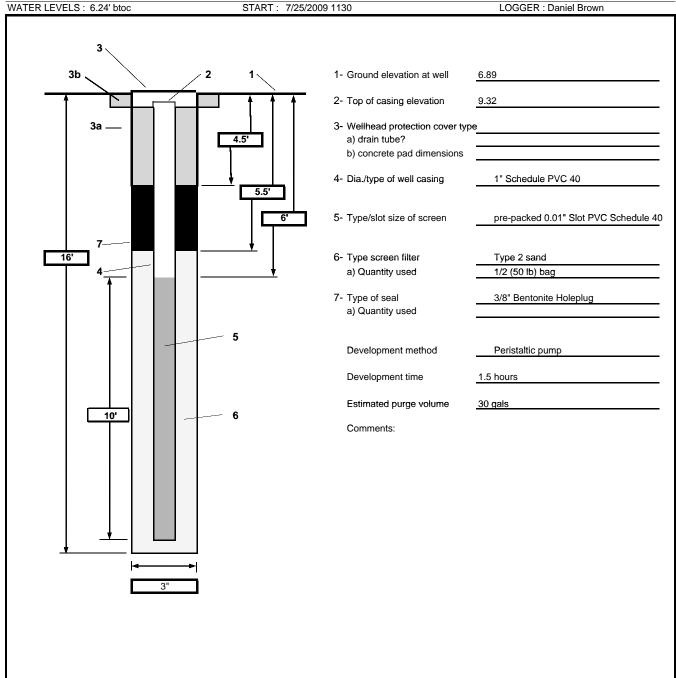
PROJECT NUMBER WELL NUMBER 377812 CJCA-TW26 SHEET 1 OF 1

WELL COMPLETION DIAGRAM

PROJECT: CT0-011 LOCATION: CJCA Camp Lejeune, NC

DRILLING CONTRACTOR: SAEDACCO

DRILLING METHOD AND EQUIPMENT USED: DPT





PROJECT NUMBER

377812 WELL NUMBER

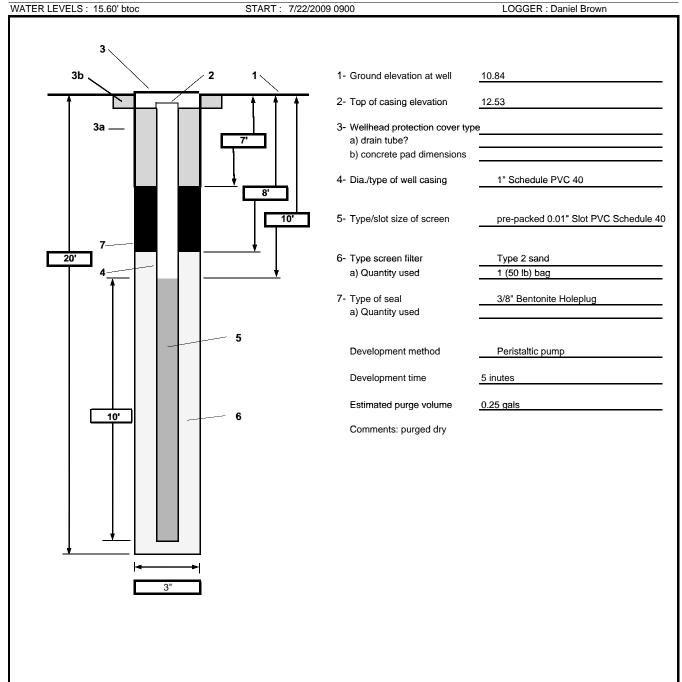
CJCA-TW27 SHEET 1 OF 1

WELL COMPLETION DIAGRAM

PROJECT: CT0-011 LOCATION: CJCA Camp Lejeune, NC

DRILLING CONTRACTOR: SAEDACCO

DRILLING METHOD AND EQUIPMENT USED: DPT





PROJECT NUMBER WELL NUMBER 377812 CJCA-TW28 SHEET 1 OF 1

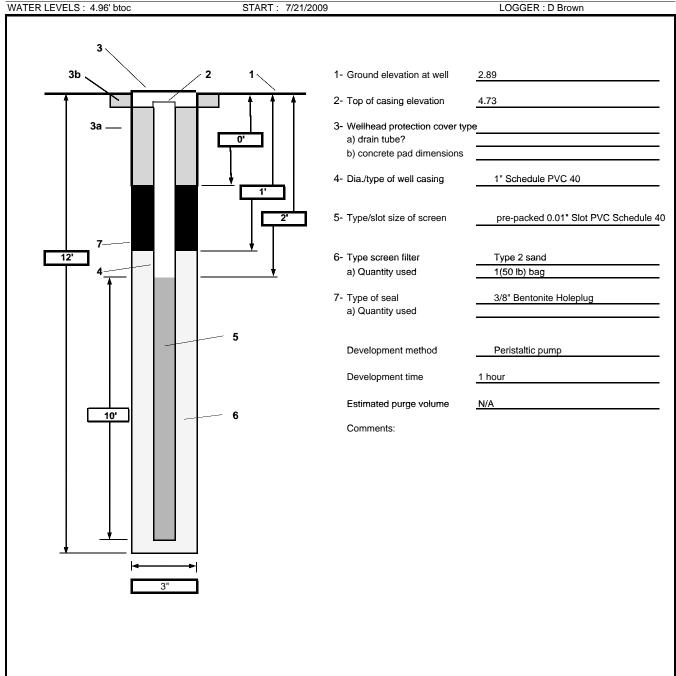
WELL COMPLETION DIAGRAM

PROJECT: CT0-011 LOCATION: CJCA Camp Lejeune, NC

DRILLING CONTRACTOR: SAEDACCO

DRILLING METHOD AND EQUIPMENT USED: DPT

START: 7/21/2009





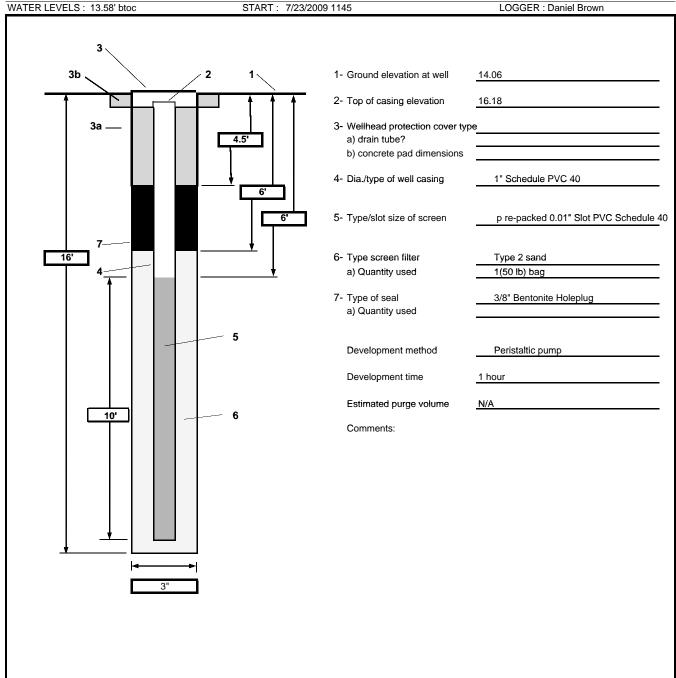
PROJECT NUMBER WELL NUMBER 377812 CJCA-TW29 SHEET 1 OF 1

WELL COMPLETION DIAGRAM

PROJECT: CT0-011 LOCATION: CJCA Camp Lejeune, NC

DRILLING CONTRACTOR: SAEDACCO

DRILLING METHOD AND EQUIPMENT USED: DPT





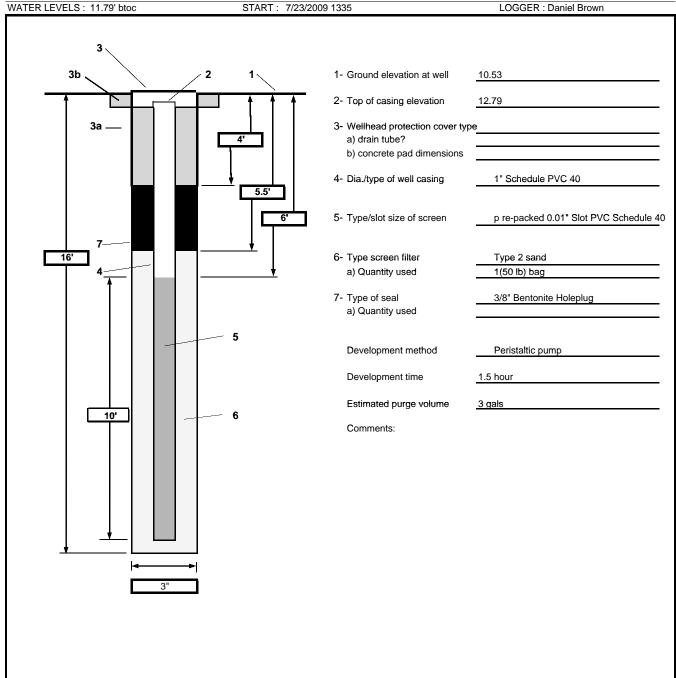
PROJECT NUMBER WELL NUMBER 377812 CJCA-TW30 SHEET 1 OF 1

WELL COMPLETION DIAGRAM

PROJECT: CT0-011 LOCATION: CJCA Camp Lejeune, NC

DRILLING CONTRACTOR: SAEDACCO

DRILLING METHOD AND EQUIPMENT USED: DPT





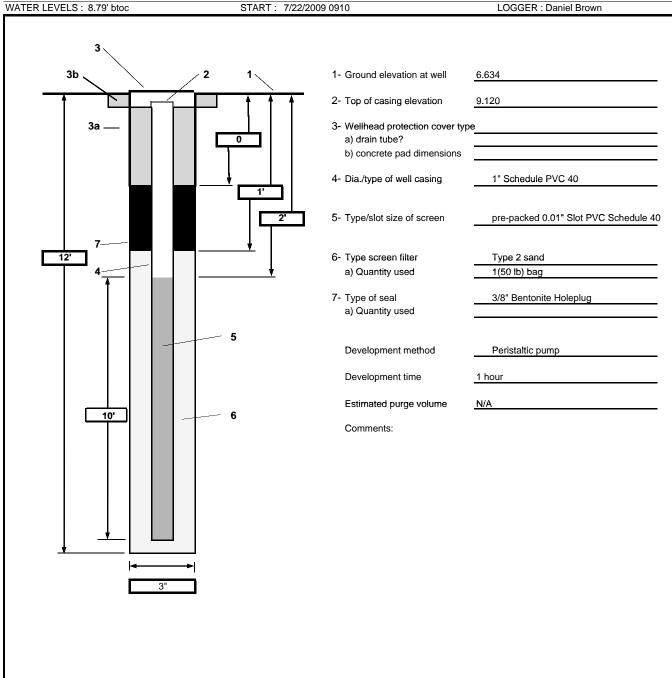
PROJECT NUMBER WELL NUMBER 377812 CJCA-TW31 SHEET 1 OF 1

WELL COMPLETION DIAGRAM

PROJECT: CT0-011 LOCATION: CJCA Camp Lejeune, NC

DRILLING CONTRACTOR: SAEDACCO

DRILLING METHOD AND EQUIPMENT USED: DPT





PROJECT NUMBER

377812 WELL NUMBER

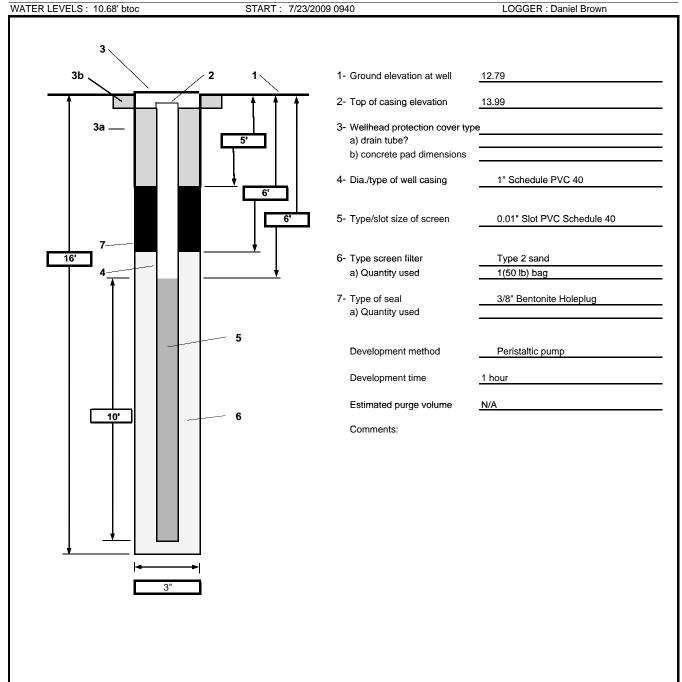
CJCA-TW32 SHEET 1 OF 1

WELL COMPLETION DIAGRAM

PROJECT: CT0-011 LOCATION: CJCA Camp Lejeune, NC

DRILLING CONTRACTOR: SAEDACCO

DRILLING METHOD AND EQUIPMENT USED: DPT





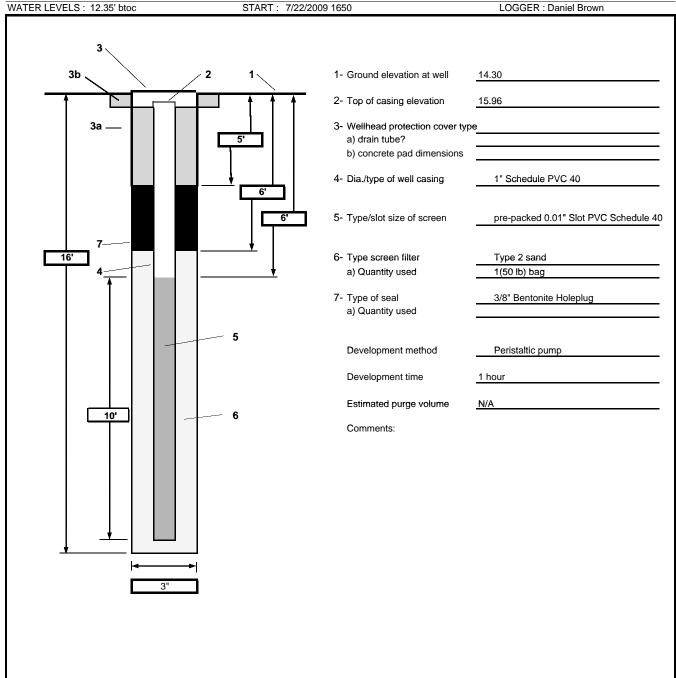
PROJECT NUMBER WELL NUMBER 377812 CJCA-TW33 SHEET 1 OF 1

WELL COMPLETION DIAGRAM

PROJECT: CT0-011 LOCATION: CJCA Camp Lejeune, NC

DRILLING CONTRACTOR: SAEDACCO

DRILLING METHOD AND EQUIPMENT USED: DPT





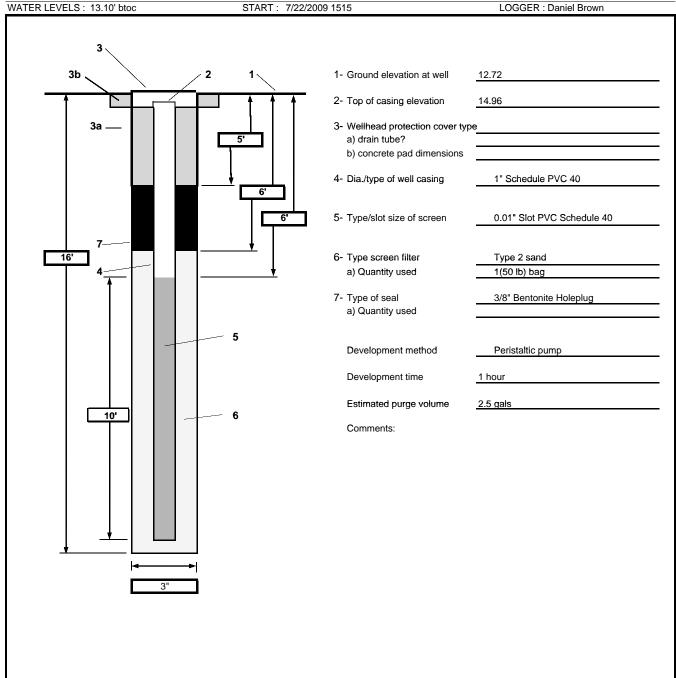
PROJECT NUMBER WELL NUMBER 377812 CJCA-TW34 SHEET 1 OF 1

WELL COMPLETION DIAGRAM

PROJECT: CT0-011 LOCATION: CJCA Camp Lejeune, NC

DRILLING CONTRACTOR: SAEDACCO

DRILLING METHOD AND EQUIPMENT USED: DPT





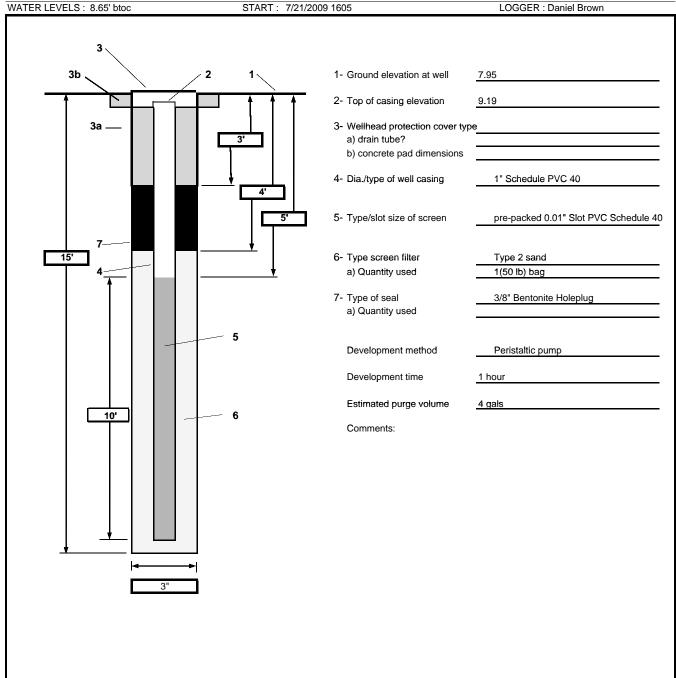
PROJECT NUMBER WELL NUMBER 377812 CJCA-TW35 SHEET 1 OF 1

WELL COMPLETION DIAGRAM

PROJECT: CT0-011 LOCATION: CJCA Camp Lejeune, NC

DRILLING CONTRACTOR: SAEDACCO

DRILLING METHOD AND EQUIPMENT USED: DPT





PROJECT NUMBER

377812 WELL NUMBER

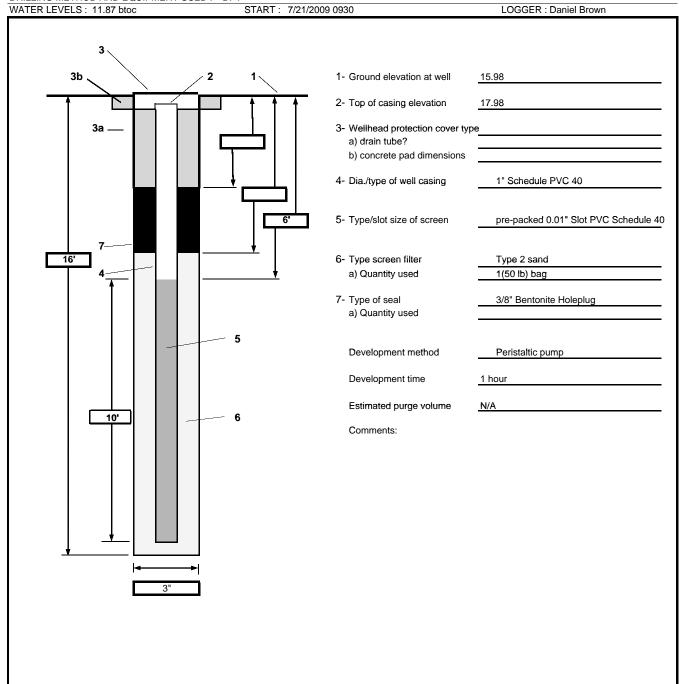
CJCA-TW36 SHEET 1 OF 1

WELL COMPLETION DIAGRAM

PROJECT: CT0-011 LOCATION: CJCA Camp Lejeune, NC

DRILLING CONTRACTOR: SAEDACCO

DRILLING METHOD AND EQUIPMENT USED: DPT





PROJECT NUMBER WELL NUMBER 377812 CJCA-TW37 SHEET 1 OF 1

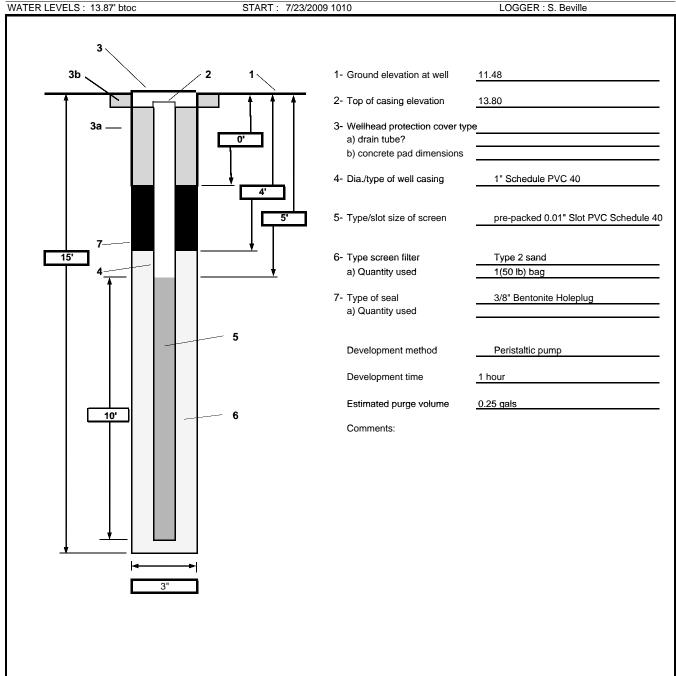
WELL COMPLETION DIAGRAM

PROJECT: CT0-011 LOCATION: CJCA Camp Lejeune, NC

DRILLING CONTRACTOR: SAEDACCO

DRILLING METHOD AND EQUIPMENT USED: DPT

START: 7/23/2009 1010





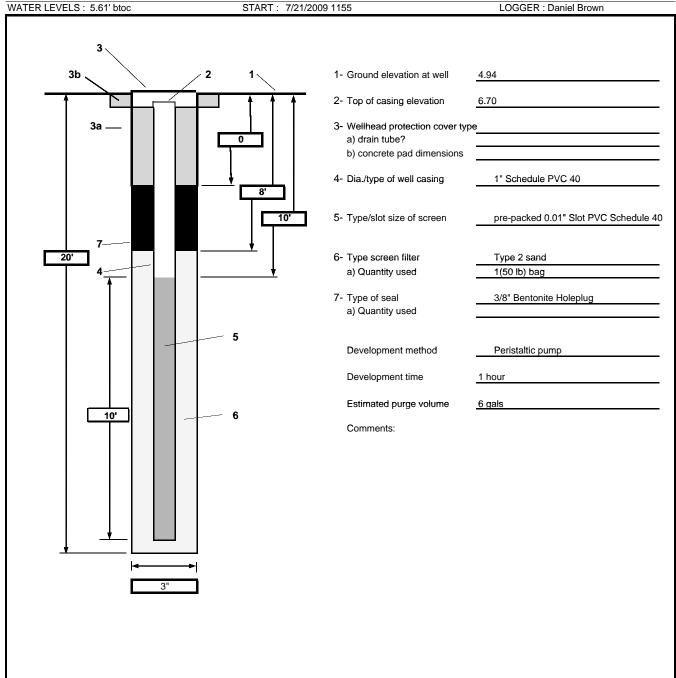
PROJECT NUMBER WELL NUMBER 377812 CJCA-TW38 SHEET 1 OF 1

WELL COMPLETION DIAGRAM

PROJECT: CT0-011 LOCATION: CJCA Camp Lejeune, NC

DRILLING CONTRACTOR: SAEDACCO

DRILLING METHOD AND EQUIPMENT USED: DPT





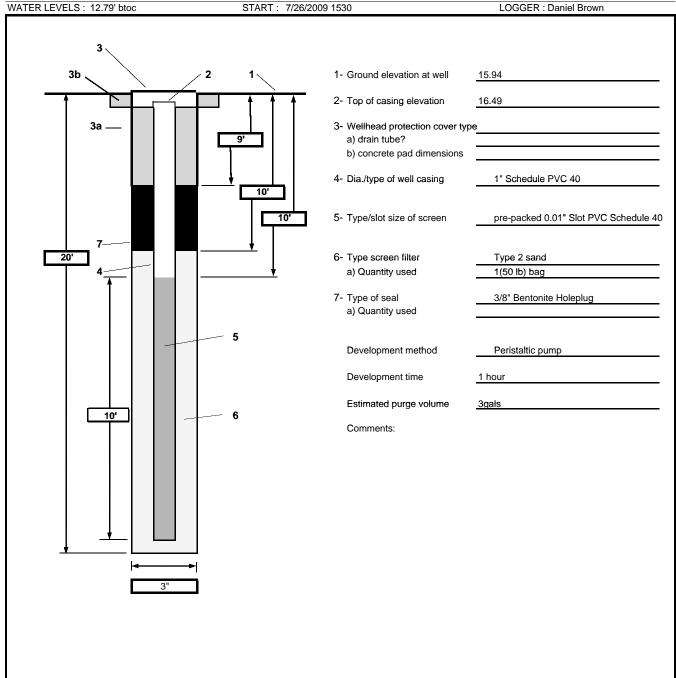
PROJECT NUMBER WELL NUMBER 377812 IR15-TW01 SHEET 1 OF 1

WELL COMPLETION DIAGRAM

PROJECT: CT0-011 LOCATION: IR15 Camp Lejeune, NC

DRILLING CONTRACTOR: SAEDACCO

DRILLING METHOD AND EQUIPMENT USED: DPT





PROJECT NUMBER WELL NUMBER 377812 IR15-TW02 SHEET 1 OF 1

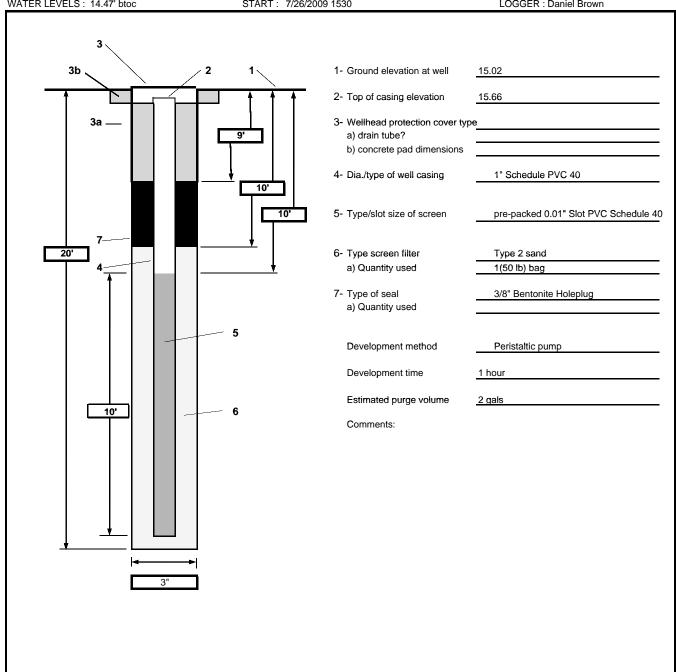
WELL COMPLETION DIAGRAM

PROJECT: CT0-011 LOCATION: IR15 Camp Lejeune, NC

DRILLING CONTRACTOR: SAEDACCO

DRILLING METHOD AND EQUIPMENT USED: DPT

START: 7/26/2009 1530 LOGGER : Daniel Brown WATER LEVELS: 14.47' btoc





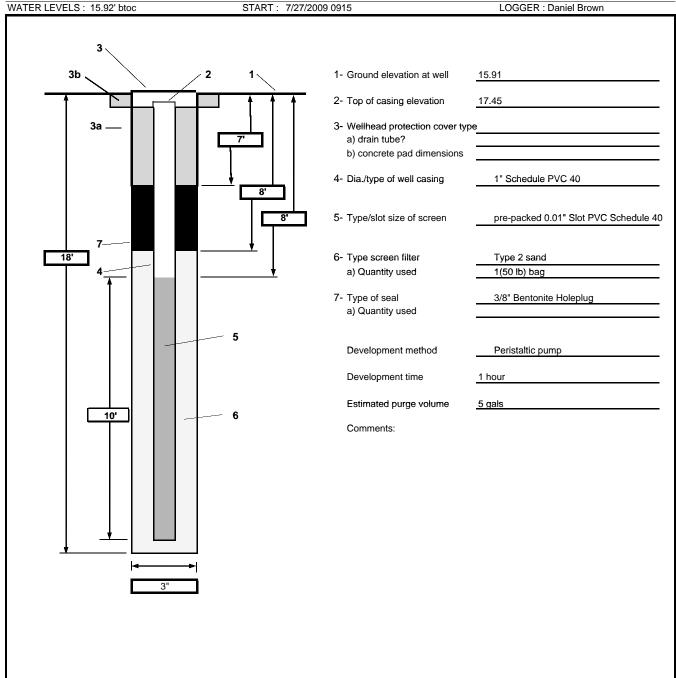
PROJECT NUMBER WELL NUMBER 377812 IR15-TW03 SHEET 1 OF 1

WELL COMPLETION DIAGRAM

PROJECT: CT0-011 LOCATION: IR15 Camp Lejeune, NC

DRILLING CONTRACTOR: SAEDACCO

DRILLING METHOD AND EQUIPMENT USED: DPT





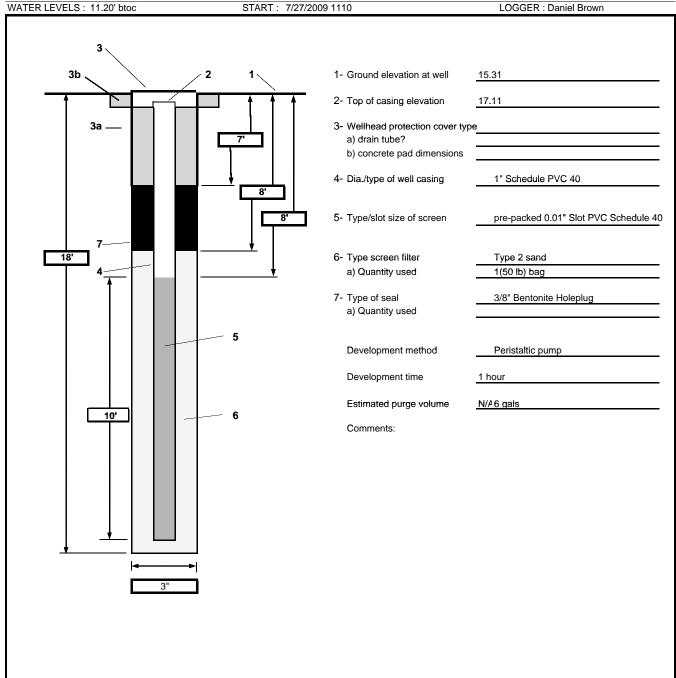
PROJECT NUMBER WELL NUMBER 377812 IR15-TW04 SHEET 1 OF 1

WELL COMPLETION DIAGRAM

PROJECT: CT0-011 LOCATION: IR15 Camp Lejeune, NC

DRILLING CONTRACTOR: SAEDACCO

DRILLING METHOD AND EQUIPMENT USED: DPT





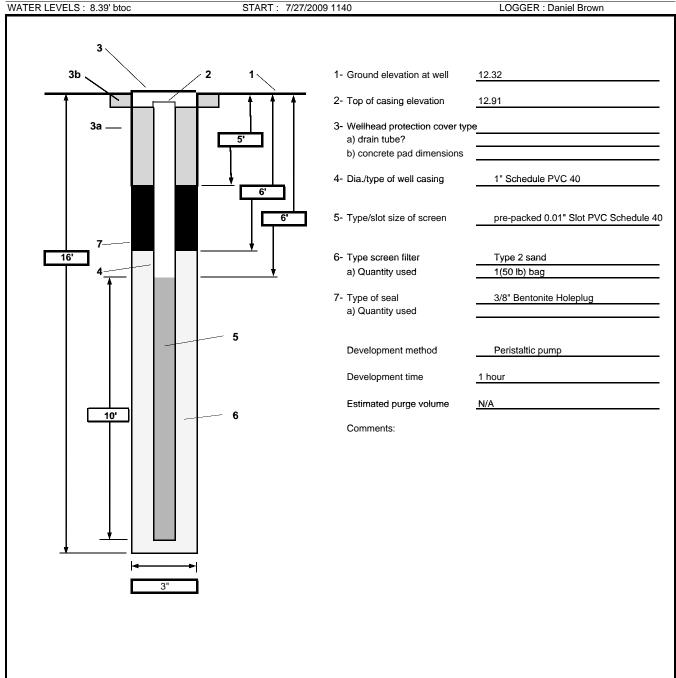
PROJECT NUMBER WELL NUMBER 377812 IR15-TW05 SHEET 1 OF 1

WELL COMPLETION DIAGRAM

PROJECT: CT0-011 LOCATION: IR15 Camp Lejeune, NC

DRILLING CONTRACTOR: SAEDACCO

DRILLING METHOD AND EQUIPMENT USED: DPT





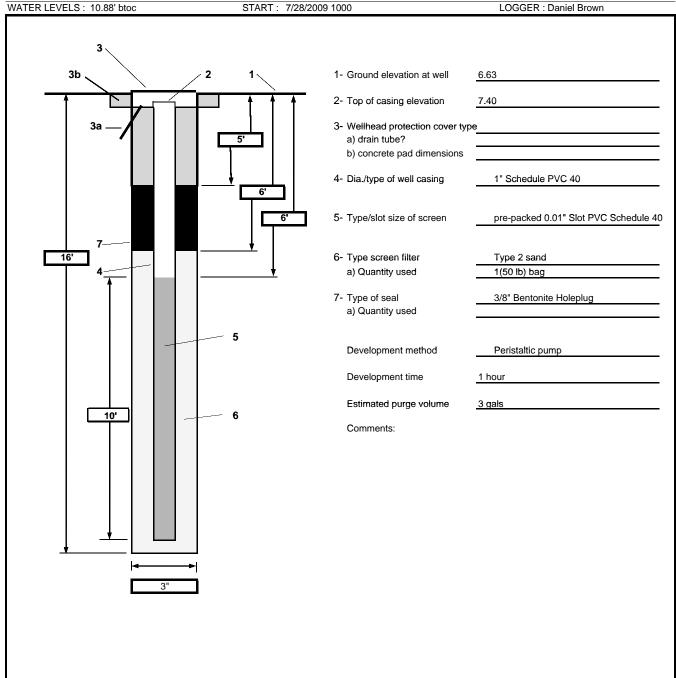
PROJECT NUMBER WELL NUMBER 377812 IR17-TW01 SHEET 1 OF 1

WELL COMPLETION DIAGRAM

PROJECT: CT0-011 LOCATION: IR17 Camp Lejeune, NC

DRILLING CONTRACTOR: SAEDACCO

DRILLING METHOD AND EQUIPMENT USED: DPT





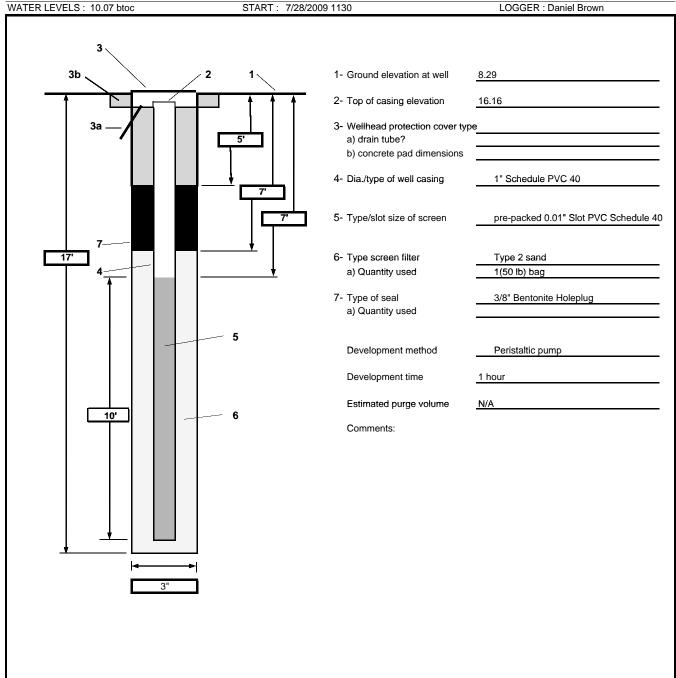
PROJECT NUMBER WELL NUMBER 377812 IR17-TW02 SHEET 1 OF 1

WELL COMPLETION DIAGRAM

PROJECT: CT0-011 LOCATION: IR17 Camp Lejeune, NC

DRILLING CONTRACTOR: SAEDACCO

DRILLING METHOD AND EQUIPMENT USED: DPT





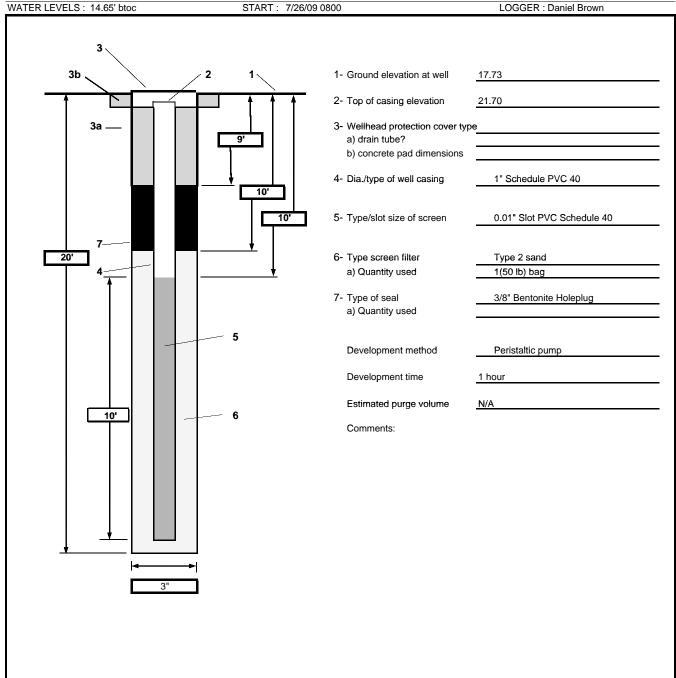
PROJECT NUMBER WELL NUMBER 377812 IR85-TW04 SHEET 1 OF 1

WELL COMPLETION DIAGRAM

PROJECT: CT0-011 LOCATION: IR85 Camp Lejeune, NC

DRILLING CONTRACTOR: SAEDACCO

DRILLING METHOD AND EQUIPMENT USED: DPT





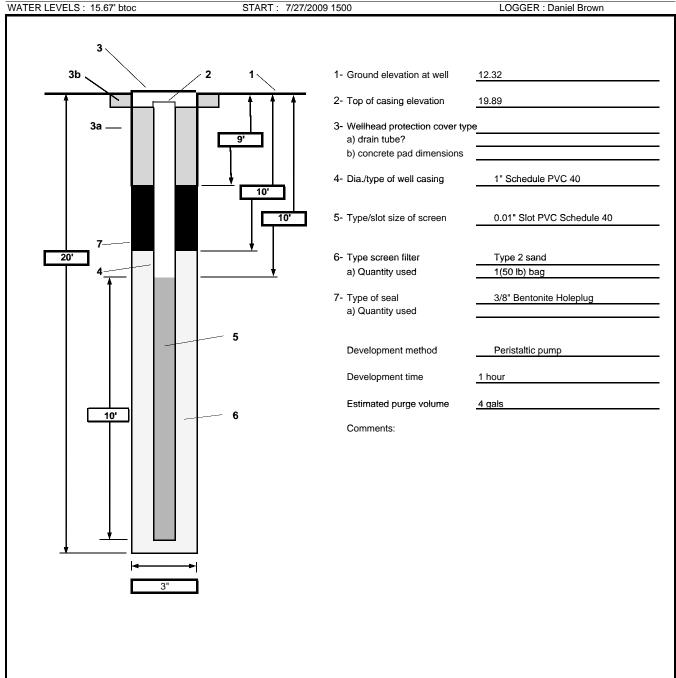
PROJECT NUMBER WELL NUMBER 377812 **IR85-TW05** SHEET 1 OF 1

WELL COMPLETION DIAGRAM

PROJECT: CT0-011 LOCATION: IR85 Camp Lejeune, NC

DRILLING CONTRACTOR: SAEDACCO

DRILLING METHOD AND EQUIPMENT USED: DPT





PROJECT NUMBER

377812 WELL NUMBER

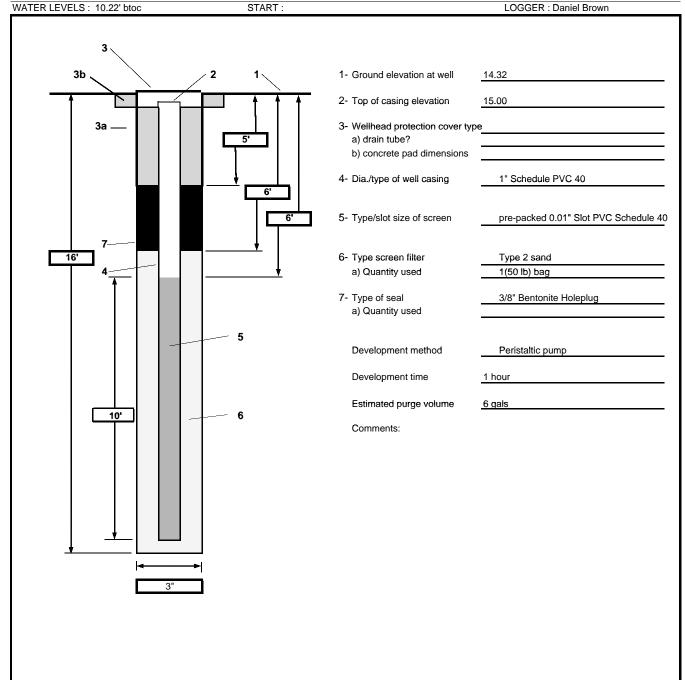
IR85-TW06 SHEET 1 OF 1

WELL COMPLETION DIAGRAM

PROJECT: CT0-011 LOCATION: IR85 Camp Lejeune, NC

DRILLING CONTRACTOR: SAEDACCO

DRILLING METHOD AND EQUIPMENT USED: DPT





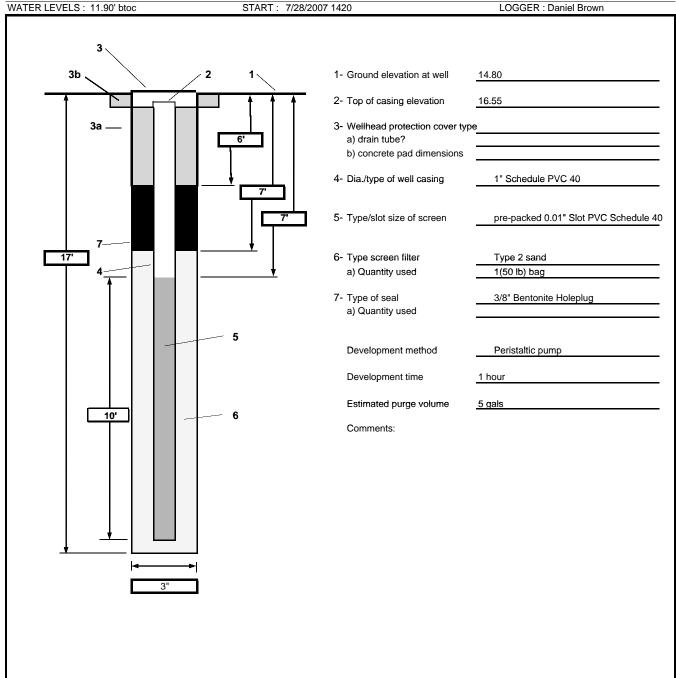
PROJECT NUMBER WELL NUMBER 377812 **IR85-TW07** SHEET 1 OF 1

WELL COMPLETION DIAGRAM

PROJECT: CT0-011 LOCATION: IR85 Camp Lejeune, NC

DRILLING CONTRACTOR: SAEDACCO

DRILLING METHOD AND EQUIPMENT USED: DPT





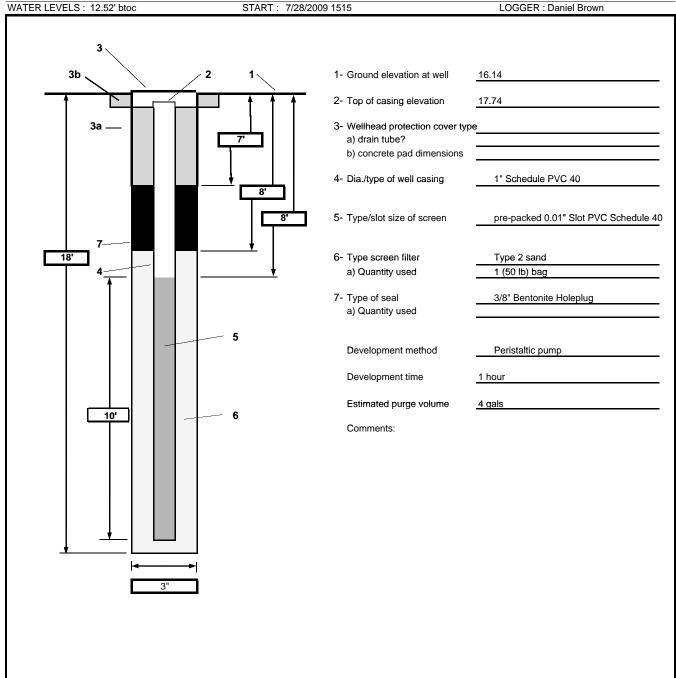
PROJECT NUMBER WELL NUMBER 377812 **IR85-TW08** SHEET 1 OF 1

WELL COMPLETION DIAGRAM

PROJECT: CT0-011 LOCATION: IR85 Camp Lejeune, NC

DRILLING CONTRACTOR: SAEDACCO

DRILLING METHOD AND EQUIPMENT USED: DPT



Well Completion Diagram.xls xxxxxx.xx.xx



	inia	froit of system exercised for uses on white (TV putch) typheroiner;								
		NON-HAZARDOUS WASTE MANIFEST		2.2.2.5BO	Manifest locument No.	2. Page 1 of 1	1 8		725	
A	THE REAL PROPERTY.	Generator's Name and Mailing Address MC SC. BOX. 20004, ATTN: IE AMP LIGHTE, NC. 20547 Generator's Phone (910) 451-91							ver Roa	
Ì	-	Generator's Phone (910) 451-91 Transporter 1 Company Name	107, BOID LOV	US EPA ID Numb	er	A. Transp			NC 265	42
	E	vo Corporation	N.C	D982.1.1.	4803	336			344	
П	7.	Transporter 2 Company Name	8. }.[C	D9.8.2 1.1	4.803	B. Transpo			844	
I	9.	Designated Facility Name and Site Address	10.	US EPA ID Numb	er	C. Facility	s Phone			
	Cac	COFLD, INC. 150 Ritherson Street reensbord, N.C. 27407	IN.C	D9.8.0.84	-2.132	336	855	-79	25	
I	11	Waste Shipping Name and Description				1:	2. Cont No.	Type	13. Total Quantity	14. Unit Wt/Voi
	a.	Von-Hazardous, Non-Re	gwated Con	taminated S	Soil	0	05	DM	est. 3,700	P.
GENE	b.	Jon-Hazardous, Non-Re	gulated Conti	aminated W	ater	0	08	머	est 3,600	P
GENERATOR	c.								5,00	
Ï	d.	_ ,,								
										-
	D.	Additional Descriptions for Materials Listed Ab	oove			E. Handlin	g Code	s for Wo	astes Listed Above	
		-	2			×				
	15.	Special Handling Instructions and Additional 3. SOIL CUSTINGS From S	amding & Wel	Installation	on 50	DAD	Γ			-
	1)	a. Soil cuttings from S o. purge/decon water	from ground	water Sami	oling					
										- [
1						EV	0#	08	0907	
1	16.	GENERATOR'S CERTIFICATION: I certify the Printed/Typed Name	materials described above on	this manifest are not subject	t to federal regu	ulations for re	porting (proper di	sposal of Hazardous Month Day	Waste. Year
1	L	Jon A. Mzyes 124		Jon 1 20	menge	11			11.20.4	0.9
TRANSPORTER	17.	Transporter 1 Acknowledgement of Receipt of Printed/Typed Name	RATG	Signature / In	ry Cri	aig			Month Day 1.2 0.4	Year 0.9
OR	18.	Transporter 2 Acknowledgement of Receipt of Printed/Typed Name	Materials	Cinastura	/	0		1000 191		Year
Ė		rimed, types rume		Signature					Month Day	Year
	19.	Discrepancy Indication Space								Į.
FAC										Į.
FACILITY	20.	Facility Owner or Operator: Certification of re	ceipt of waste materials co	vered by this manifest e	xcept as noted	in Item 19.				
	1	Printed Typed Name OF Ella Belg	m	Signature SW	ey	B			Month Day	Č.
1	tod b	J. J. KELLER R. ASSOCIATES, INC. N. 64967-0369	ORIGINAL - RE	TURN TO GENERA	TOR	ALC:			12.80	O-M5

Appendix D Laboratory Analytical Results and Chain of Custody Forms

7210A Corporate Court Frederick, MD 21703 (301) 694-5310 Fax (301) 620-0731

Contract #/Billing Reference		
	of	Pgs

Project: CTO-	11 (0	L ams	ohn son		Tumaround Time fundar fundar fundar fundar											
Client: CHZ	M H	11			# of Conta	ainers	/	1/1	/1	/1	/	/		/	/	/ /
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		Brack			Type of	Type of Analysis CLIENT COMMENTS										
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09C	7/22	H-00	Aa	DS		-	X	X	X	X					Paven	Sample
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1885-MW01-	7/22	11:00	AQ	24			X	X	X	X					MSD	
IRS 5-TBOI	7/22	14:40	AQ	125					X							
		1														
									LA				-4			
															1	
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Relinquished By	Dat	Received E	By: Lab Comments: Temp:									Temp:				

7210A Corporate Court Frederick, MD 21703 (301) 694-5310 Fax (301) 620-0731

Contract #/Billing Reference of Pgs.

Project: 070-/	I Car	200 101	mscm	- Francisco	Turnaround Time											
Client: CHZA	1 411	1			# of Cont	ainers									/	
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CXA SSU12-09	7/8/09	1620	50	DH	\times											
DCA-50172-00	c 1	1620	SO	[B/mic	><	\times				de.						
CJCA-55171-05	(1605	50"	Blmu	><											
CJCA-59082-0	90	1530	SO	Bhny	><							T.				
WASS174-0	70	1635	50	CB/mic	\geq			•	1							
CJCA-55074-0	90	1510	50	(B) pmu	X,							7_				
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Relinquished By:		Dat	e/Time	Received E	By:			Lab Comr	nents:							Temp:
											. '		1			

G.P. W.O.

7210A Corporate Court Frederick, MD 21703 (301) 694-5310 Fax (301) 620-0731

ontract #/Billing Reference	11	
	2 of U	Pgs

Project: 77	11 0	amode	olinso	n	Turnaround	d Time	-/		/	/	/	/	/	/			7
Client: AL/	2M /	411			# of Contai	ners	_/-						/	/	/	/ /	
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Address: 5 700		eland	st s	te 101	Preservativ Used	/e /	-/	-/		_/		_/			3	* /	
Virgini	IA B	each	VA	03462	Type of	18		/			/		/-		100		
Phone: -457	671-	-6284	1		Analysis	E /	/	/ /	/	/	/ /	/	/	/	8/		
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CUCA SSH4-09C	SD	1700	50	DH	\times										ms	D	
UCA-SS114-09C-	ms	1700	50	DH	\times								17		1915		
JEA 53110-69	cl.	1650	50	DH	\times					14							
JCA SS113-090		1710	50	DH	\times												
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April 14 10 10	SD L	0730	SO	OF TIME	>>										MSD	> should	
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7210A Corporate Court Frederick, MD 21703 (301) 694-5310 Fax (301) 620-0731

Contract #/Billing Reference	1.7	
377812, FI-FS	3 of 4	Pg

Project:	1 700	mir) des	JUSTA		Turnarou	nd Time		//	7	/	7	7		7		//
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CA 55/09-090	7/9/07	0745	30	DH	X		4.7								1000	correct
CA 55 067-096		0750	50	Hims	><											
CA-55064-096		0800	SO	OF \$ms	>											
CA-55121- 090		X20	30	DH	><											
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KN 5847 096		UE 30	50	DH	><											150
XA-55108 090		0040	56	DH	\geq									-		
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Relinquished By		Dat	e/Time	Received E	By:			Lab Comm	ents:			d d				Temp:

7210A Corporate Court Frederick, MD 21703 (301) 694-5310 Fax (301) 620-0731

Contract #/Billing Reference	1/ 1/	
	4 of \	Pg

Project: 070	11 Car	no Jul	usan		Turnarou	nd Time	/	//	7	7	7	7	/	7	7	//
Client: 04/2A	1 41	11			# of Cont	ainers										$\overline{\mathcal{I}}$
Send Results To:	Silver	Leve B	10110		Containe		135	1 Sar	/	/	/		/		<u>/</u> ,	/ /
Address:		ec la no		10101	Preserva Used	tive /	-/								_/	No.
Virginia	Beach	VA:			Type of	alucia /										
Phone: 757-	671-0	6284			Analysis	1.9.	/	/ /	/	/ /	/ /	/	/ /	/	8/	
Sample ID#	Date Sampled	Time Sampled	Sample Matrix	Sampler's Initials	La constant	11/ 3									/	CLIENT COMMENTS
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7210A Corporate Court Frederick, MD 21703 (301) 694-5310 Fax (301) 620-0731

Contract #/Billing Reference	1	
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Project: 070	II Car	npleh	uson		Turnaround Time											
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Virginia			234		Type of	(in)	/				/	/		/		
Phone: 757	671	6384		W.	Analysis	Ela.	pH,	/ /	,	/ /	/ /	/	/ /	/	8/	
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10A-55118-09C		0915	50	B/mu	\geq											
CA-55083-09C		0920	50	EB/mu	\geq	$\geq <$							1			
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7210A Corporate Court Frederick, MD 21703 (301) 694-5310 Fax (301) 620-0731

Contract #/Billing Reference	2	-	
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Relinquished By:		Date	Date/Time Received By:					Date/Time	Ship			Airbil	No.:			
Carpa &	-	Ther	1845						7							
Relinquished By: Date/Time Received By:					Lab Comments: Temp:					Temp:						



EMPIRICAL LABORATORIES, LLC - CHAIN OF CUSTODY RECORD
SHIP TO: 227 French Landing Drive, Suite 550 + Nashville, TN 37228 + 615-345-1115 + (fax) 615-846-5426

Send Results to:		Send Invoid	e to:			Analysi	s Requiremen	its:	Lab Use Only:			
Name	1 St Stell	City State, Zip Phone Fax E-mail Sampler's (Signature): Sample Sample							VOA Headspace Field Filtered Correct Container Discrepancies Cust. Seals Intact Containers Intact Airbill #:	rs \	Y N NA	
Lab Use Only Lab #	Date/Time Sampled	Sample	Description	Sample Matrix					Comments	No. of Bottles	Lab Use Only Containers/Pres.	
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- 1										Page	of	
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Received for Laboratory by:	(Signature)	Date/Time	e Temperature							Turnard	ound	



EMPIRICAL LABORATORIES, LLC - CHAIN OF CUSTODY RECORD

SHIP TO: 227 French Landing Drive, Suite 550 + Nashville, TN 37228 + 615-345-1115 + (fax) 615-846-5426

23687

Send Results to:	Send Invoice to:				Analysis Requirements:	Lab Use Only:				
Name	Name		11			VOA Headspace		Y N	NA	
Company	Company		7			Field Filtered		Y N	NA	
Address	Address		2			Correct Containe	rs '	Y N	NA	
AddressCity	Address		14			Discrepancies		Y N	NA	
State, Zip	State, Zip		183			Cust. Seals Intac	it `	Y N	NA	
Phone	State, ZipPhone		119			Containers Intact		Y N	NA	
Fax	Fax		20							
E-mail	E-mail		ne	7		Airbill #:				
Project No./Name:	Sampler's (Signature):		dus	-		CAR #:				
Lab Use Only Date/Time Sampled	Sample Description	Sample Matrix				Comments	No. of Bottles	Lab Us Containe	e Only rs/Pres.	
71110	1900 190 190	SO	X							
✓ (利理學者)	CALSOMI OCHMS	50	X			ms				
72.00	101CA-49147-09C-015	Marie Colonia	X			MSD				
71912	CUCA SCHOOL	The state of the s	X			resample				
Vizic Appear	CVA-SS159-GAL		X							
*10 1 35	CJ(A 55158-098		X	X						
2019 1215	CULA 53/27-816		X			Resample				
719607 1105	CYCA \$ 91,55-09 C	110	X							
1 1205	CVA-PSBLEOGC	1	X	X		in the				
· 71/10/12/5	OJON-55137-076	1.	X							
7/9/9/1225		+2	X							
119/67 1329	CJCA-55164-CM	1					1 8 7-2			
Sample Kit Prep'd by: (Signature)	Date/Time Received By: (Si	gnature)			REMARKS:			Details:		
District to the second	D / T' D : 1D /0	Processor Annual Control					Page _	of _		
Relinquished by: (Signature) Date/Time Received By: (Signature)							Cooler	No c	of	
Relinquished by: (Signature) Date/Time Received By: (Signature)							Date SI	nipped		
								d By		
Received for Laboratory by: (Signature) Date/Time Temperature								ound		



EMPIRICAL LABORATORIES, LLC - CHAIN OF CUSTODY RECORD

SHIP TO: 227 French Landing Drive, Suite 550 + Nashville, TN 37228 + 615-345-1115 + (fax) 615-846-5426

Send Results to:		Send Invoice to:					Analysis Requirements:						Lab Use Only:				
NameCompanyAddressCityState, ZipPhoneFaxE-mailProject No./Name:	Name Company Address City State, Zip Phone Fax E-mail Sampler's (Signature):			an himony as sail con port.		SVet + TAL metals lates					VOA Headspac Field Filtered Correct Contain Discrepancies Cust. Seals Inta Containers Inta Airbill #:			Y N NA ers Y N NA Y N NA oct Y N NA ct Y N NA			
Lab Use Only Lab #	Date/Time Sampled	Sample	Description	Sample Matrix								Cor	mments	No. of Bottles	Lab Use Containe	only rs/Pres.	
	1/1/1/1/35	Challes F	1010-09C	50	X							dup	icale				
	1 A 84/5	CILASS	104-096	150	X							1					
	100	0015	167-0900	50m	X												
		CVA- 35	1670-096	50	X							dup	licate				
	14/1/19	TRES. E.B.	the pay was	· A A SHA		A-0-08	X	X					lank				
	1年10	CUCAFE	3670709	77.8700	X							Soule	Blank				
	1455	CJCA-SSI	SHORE	150	X									1 h / pt/			
	145	CUCA- SE	173-090-	1	X							3.					
TER HEROMET	1450	CUCA SS	147-076	187	X												
	1425	C)(1-55	110-090		X												
	1435 (中元)	C)(A-55	148.090	3	X												
	1910/14/1		148D-09C	1	X									2			
Sample Kit Prep'd by: (Si	gnature)	Date/Time	Received By: (Si	gnature)			F	REMA	RKS	:				14,41	Details:	1	
Relinquished by: (Signatu	Date/Time Received By: (Signature)													of _			
Relinquished by: (Signature) Date/Time			te/Time Received By: (Signature)												nipped		
Received for Laboratory by	Date/Time	/Time Temperature				100				4			7	und			

EMPIRICAL LABORATORIES, LLC - CHAIN OF CUSTODY RECORD

SHIP TO: 227 French Landing Drive, Suite 550 + Nashville, TN 37228 + 615-345-1115 + (fax) 615-846-5426

Send Results to:		Send Invoice to:					A	nalysi	s Requ	uireme	nts:	Lab Use Only:				
Name	Name Company Address City State, Zip Phone Fax E-mail Sampler's (Signature):				H						VOA Headspace Field Filtered Correct Container Discrepancies Cust. Seals Intact Containers Intact Airbill #:	s \	N N N N N N N N N N N N N N N N N N N	NA NA NA NA NA		
Project No./Name:		Sampler's (S	ignature):		100	đ						CAR #:				
Lab Use Only Lab #	Date/Time Sampled	Sample	Description	Sample Matrix								Comments	No. of Bottles	Lab Use Containe	e Only rs/Pres.	
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	19/19/19/05	OJCARST	162-090									Duglicate				
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Sample Kit Prep d by: (Sig	Sample Kit Prep'd by: (Signature) Date/Time Received By: (Signature)						h	REMAR	K5:					Details:		
Relinquished by: (Signature) Date/Time Received By: (Signature)				gnature)									Page _	of _		
En 19/09/11/15													Cooler I	No o	f	
AND THE			Date/Time Received By: (Signature)								Date Shipped					
Received for Laboratory by:	Date/Time	Temperature							Shipped By							

7210A Corporate Court Frederick, MD 21703 (301) 694-5310 Fax (301) 620-0731

Contract #/Billing Reference		
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Project:	LILE TO COURT DESCRIPTION OF THE PERSON OF T							//	7	7	7	7		7	/	//
	HILL				# of Con	tainers										7/
0 15 11 5	School	UNE A III	10		Containe		(ca)	1/11714	/		/			<u>/</u> ,		/ /
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V 18.41 PHO	Pene	12. VI	231/1	2	Type of	15/16	/	/	/	/	/	/	/	/	60	
Phone:	UHL	254			Analysis	100	/	/ /	/	/ /	/-/	/	/ /	/ /	2/	
Sample ID#	Date Sampled	Time Sampled	Sample Matrix	Sampler's Initials			*/	-			/				/	CLIENT COMMENTS
CJCA-55213-09C	7/1/19	08:00	50	011	×						à.					
CYA-55214-01	7/7/01	ation.	SO	BUH	X											
CYCA-51 800-09C	7/7/09	08:60	50	JE AMIS	×			l X			-					
C)C0-8029 01C	7/1/09	CE:15	50	WEMS	X											
CHCA-EB070709	7/7/19	14:45	W	TM	X					10.1	0				EGUI	PINENTEIA
CYCA ST210-696	7/7/2	08:35	50	DH	X	1										
CICA-SSAH-U9C	7/7/09	08.50	50	NH	X					- 10	A TOTAL					
CVA-5020 198	7/7/01	09.10	2/1	11/11	X											
Cx6-557/-19	7/1/61	09.45	SI	JF 175	X,	X	219									
C)CA 55096-09	7/7/09	03:20	20	EB & Mu	X											
CXA-SUM-GC	11707	18:55	50 .	16 my	1								-			
CJCA-SSC97-ON		0825	50	EB FAV	X	700	<u> </u>			1			1			T. D. C.
Relinquished By:	ltal	7/1/07	e/Time	Received B	y: ·	-	- Aler	Relinquis	hed By			Hece	ived for L	aboratory	и Ву:	Date/Time
Relinquished By:		Dat	e/Time	Received B	y:			Date/Tim	e Ship	per:		Airbil	ll No.:	Ě		
Relinquished By:		Dat	e/Time	Received B	y:			Lab Com	ments:	-1						Temp:

7210A Corporate Court Frederick, MD 21703 (301) 694-5310 Fax (301) 620-0731

Contract #/Billing Reference		
377816.FJ.FS	2 of	3 Pgs

Project: / 7/)	Project: Turnaround Tim Client: # of Containers							/ /	/		7	7		7	7	//
Client: 0 112 //	11/1/11	- Yanda - A	ZELLIVE	4.7	# of Con	ainers	/		/		1				-	7 /
Send Results To:	SCHOW	IEVE A	Ju Ro		Containe		111	1/12M/								/ /
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WAGINIA B	each.	VA O	34/2	The state of the s	Type of	1	/				/	/		/	100	
Phone: 757	1671-	6284			Analysis	STY	/	/ /	,	/ /	/	/	/ /	/ /	1 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	
Sample ID#	Date Sampled	Time Sampled	Sample Matrix	Sampler's Initials		/=									/	CLIENT
CKA-SSZOY VIL	7/7/01	01:35	50	DH	X				1							
Crof 3527-10E	7/7/19	09.35	50 -	JH	X						+5-					
MASON OIC	7/7//9	12:30	50	JE 1116	X	X										
C14-5500 09C	7/7/17	09:45	50	JE MS	X	X					-					
CYCA SSZULLOW	7/7/19	10:10	50	DH	X											
CHASSIOSON	7/7/19	wice	50	DH	X				7							
UCA-55905-09	G115 11	10:00	50	DH	X											
VCA-S5205-09	(-5/) //	10:10	SO	DH	X											
VCA-5621-096	717/0	10:15	SO	MIST JE	X											#1000 max
XA-SOZID-090	7/7/19	10:15	50	MSilF	X						N-				POPE SE	YSICKA STATE
XA-8023-096	7/1109		50.	MS OF	1											
CYT SW6-19C	7/11/19		50	105711	X		L			1		10			44	016
Relinquished By:	16	7/1/19	e/Time	Received E	sy:			Relinquish	ied By			Hece	ived for L	aboratory	и ву:	Date/Time
Relinquished By		Dat	e/Time	Received B	By:			Date/Time	Ship	per:		Airbil	l No.:			
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7210A Corporate Court Frederick, MD 21703 (301) 694-5310 Fax (301) 620-0731

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Project: 070-1	1 CN1	11P JUT	INSON		Turnarou	nd Time	/		/	/ /			/			
Client: CH2N					# of Cont	ainers			/	/		/		/	/	/ /
Send Results To:	GENEV	leve A	turir		Containe		1802	11/10/10/		/	/		/		/	/ /
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VIRCINIA	DEM	HVA	2-116	2.	Type of	18:				/	/		/	/	100	
Phone:	71 6	284		*	Analysis	133	/	/ /		/a- /	/ /	/	/ /	/ /	2/	
Sample ID#	Date Sampled	Time Sampled	Sample Matrix	Sampler's Initials		1									7	CLIENT COMMENTS
YCA-9213-19L	7/7/09	11:05	SO	JE MS	X			32	11							
CICA-FECTOR	17/7/19	11:10	50	netons	X					4						
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Relinquished By:	Relinquished By: Date/Time Received B				Ву:			Lab Comments:							Temp:	

7210A Corporate Court Frederick, MD 21703 (301) 694-5310 Fax (301) 620-0731

Contract #/Billing Reference			6
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		301) 020-0731	ol rys.
Project: CTU-11 CAMP JUMPIN	Turnaround Time		
Client: / HMHIIL	# of Containers		
Send Results To:	Container Type / 67 /	1/02/11/	
Address: Add	Preservative Used	018/ //	////3/
VIRCIAIA REACTI VA 23410	Type of		
Phone: 757-771-7244	Analysis		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Sample ID# Date Sampled Sampled Sampled Sampled Sampled Sampled Sampled Sampled Sampled Sample Sampl	sampler's Initials		CLIENT
CVCA 35201 696 717/19/11:05 50 0)# ×		
VKA 522-09K 7/7/67 10-50 50)			1D=550.W2
CXA SSO14-09K 717109 TO 10 SO 11	Bimw X		6
10A-5096-967/1/09 11:20 SO F	Bimu		
010A-33495 090 717109 10:55 30 E	BEDM		
10A 5008-096 7/7/09 11:35 SO 11	rems >< >		
MEA-5009-090 7/7/19 11:20 50)F	F/ms>		
()CA: 55201-01 7/7/C] 4:50 50 1	OH X		
VA SS219-811 7/7/19 11:35 50			
CXA-35004-08 7/7/09 1200 SO SE	F I MS		
XA-55007-090 7/7/09 1230 30 JF	FAMS >		
	DH >		2 4
The state of the s	eceived By:	Relinquished By:	Received for Laboratory By: Date/Time
Water 1/200 1/200 4-00	*		
Relinquished By: Date/Time Re	eceived By:	Date/Time Shipper:	Airbill No.:
Relinquished By: Date/Time Re	eceived By:	Lab Comments:	Temp:

7210A Corporate Court Frederick, MD 21703 (301) 694-5310 Fax (301) 620-0731

Contract #/Billing Reference

of Pgs.

Project:	I Pari	p Jelin	100		Turnarou	nd Time	/	//	/	7	7	/	7	7	1	
Client:)					# of Cont	ainers									/	
Send Results To:	GENEVI	eve A	ure		Containe		(107)	0//02/9					<i></i>	<u></u> ,		/ _ /
Address:	Mese	kind s	1 5/6	HI.	Preserva Used	tive	VENE/	NONE					- /		130	No.
Vilgino	Beac	h VA:	134 b	2	Type of	13									(8)	
Phone: 757	071	6784			Analysis	18.61	/	/ /	/	/ /	/ /	/	/ /	/ /	8/	
Sample ID#	Date Sampled	Time Sampled	Sample Matrix	Sampler's Initials	100	1							/		/	CLIENT COMMENTS
CJCA-55203-090	7/7/09	12:25	50	DH	X											
JCA 552030 02	7/7/09	12:30	50	JH	><											
VCA - 50000 cgr	212109	13:50	SO	LEMNY	\times							Mai				
JCA-SSOUL-OIC	7/7/09	13:00	50	EB Imu	\times							Tr.				
JCA-SSLOK-LIK	7/7/19	13:15	SO	JF/ms	\times										Jay 50	ys 13 go Time I
CUCA SCOT 090	7/7/09	13:00	50	JF Ins	><	><										
CICA-85013 190	7/7/19	13:45	SD	11/115	><							s.p.				
JKA TON5-090	7/7/19	14:15	50	+ MIS	><							27.3				
UCA 5540 090	7/7/69	14:45	50	TIMS	\times											
DCA-58002-19	7/1109	14:30	50	STAT	\geq											
CJCA-1809-09	7/7/49	15:05	20	ucque	\geq	-										
1 XX 2027 (4	77107	15:35	50	DH	\times	-				1	1			1	1	
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7210A Corporate Court Frederick, MD 21703 (301) 694-5310 Fax (301) 620-0731

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Send Results To:	THE L	the Att	C (75.0) W		Containe		/907 X4	1/17801	/	/	/	/	/	/	/	7 /
Address: 514	S CHOICE	V INT	el cri	1/1	Preservat Used		UNE /	NONE	- /			/			7	40.
Vijanja				1.01	Type of	pe of									5/	
	11 628		- 11 E		Analysis	S. S.	/	//	/	/ ,	/ /	/	/ /	/ /		
Sample ID#	Date Sampled	Time Sampled	Sample Matrix	Sampler's Initials		H									/	CLIENT COMMENTS
UCA 53012-016	717/09	15:15	50	JE/MS	><											
KA-5514-096	7/7/19	15:30	50	JE/NS	\times											
					1											
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D. # 11 1D	1		/T	D : 15						1					-	I D. I. Ff
Relinquished By			e/Time	Received E	sy:			Relinquis	ned By			Hece	ived for t	aborator	y By:	Date/Time
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7210A Corporate Court Frederick, MD 21703 (301) 694-5310 Fax (301) 620-0731

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	Project: (TO -	11 C	imp 2	ohns	261	Turnarou	ınd Time	/	/	/	/	/	/	/	//		
	Client: CAZN	A HILL				# of Cont	tainers	/1	/1								/ /
Ī	Send Results To:	BENEV	MENE !	MOORE		Containe		1802 30	1802 X	/		/	/ -		1	/	/ /
Ī	Address: 5700	The same of the sa	VELANT		STE 101	Preserva Used	eservative NONE NONE									_/.	70/
	VIEGINI		CH VA			Type of											
Ī	Phone: 757-671-6384					Analysis	2 3 4	/	/ /	/ /	/	/ /	/ /	/	/ /	12/	/
	Sample ID#	Date Sampled	Time Sampled	Sample Matrix	Sampler's Initials	10 m										/	CLIENT COMMENTS
13	A-SSOSE-OIC	7/7/09	1600	50	DH / JH	><				11							
C	A- 35.058-070	nolete	1610	So	DH LUH	\times	\sim										
3	14 - SS0560-09C	7/7/07	1555	30	DH/JH	\times											
7	A-SSOLS-02	71-109	1600	Su	JF+MS	><	><										
1	A-SSOTT-DAC	7/109	1615	So	SF +MS	><	1				41			-			
34	A-SS090-09C	7/7/09	1420	SO	MINTER	><										MS	/m150
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Y	4-35092-096	7/7/09	1430	30	MLUIFB	\sim	><										
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SC	4-59085-09K	7/7/09		Sa	MW-EB	><								4 10			
X	4-35087-09C	7/7/09		30	MINIEB	><		-					1	1.11	1		-
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ntract #/Billing Reference	1

	Project: (TO-	11 Co	ok gmi	hnach		Turnarou	nd Time	-/		1	/	7	/	/	7	/	
	Client: CAZI	n the	-			# of Cont	tainers	/1	/1				/				7 /
	Send Results To:	Gener	lieve	Moore		Containe		Buz you	Paz yar	/		/ 200		/	100	/ +	/ /
	Address: 5700	Clevi	e land		e 101	Preserva Used	tive /	ione /r	ion#					/		_/	7
	Virginia			3462		Type of	133				/	/	/		/	3	
	Phone: 757-	671-	6284			Analysis	1 0 m	× /	/	/	/	/ /	/	/	/	8/	
	Sample ID#	Date Sampled	Time Sampled	Sample Matrix	Sampler's Initials	A STATE OF THE STA		2/								/	CLIENT COMMENTS
CACA	- 550UR - 09C	7/1/09	1520	50	MWEB	><											
CXA-	550ED-09C	2/1/09	1700	50	14	\times											
(1)(A-	95199-09C	7/7/09	11.45	50	JH	><											
WA-	SC22-096	7/7/19	11.30	90	IFTAIS	><											
COCK	SSC-1-09C	7/7/09	17 60	50	NAME						4-						
CON-	9206-09C	7/7/09	17:40	90	FB	><	><						100				
CUCA	308-9C	7/7/19	17:25	50	JE + MIS	><											
CICA	1625-176	7/7/09	17.35	50	JF4M	><											
COOM	- 55088-09C	7/7/09	15:55	50	MW/1B	\geq											+=
CICA	55026-09K	118/09	07:45	50	FAMS	\times							3 1				
CJCA	SS024-09C	718/09	07:30	50.	扩加S	$\geq \leq$	>		-				• .	-		1	
·CXI	-55181-07L	718/09		50	DH	\times			1					1	*	*	
	Relinquished By:		Date	e/Time	Received B	y:			Relinqui	shed By:			Rece	ived for L	aborator	у Ву:	Date/Time
	Relinquished By: Date/Time Received B				y:			Date/Tim	ne Ship	per:		Airbi	l No.:	4	,		
	Relinquished By: Date/Time Received				Received B	By: Lab Comments:					Temp:						

G.P. W.O. _

7210A Corporate Court Frederick, MD 21703 (301) 694-5310 Fax (301) 620-0731

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Sample ID# Sampled Sampled Matrix Initials CA-SSECTEGE TILLIA UT.35 SC DH CA-SSCOTEGE TILLIA UT.35 SC DH CA-SSCOTEGE TILLIA UT.35 SC DH CA-SSCOTEGE TILLIA UT.35 SC DH CA-SSIST-CAC UT.35 SC DH C	CLIENT
Address: Phone: Sample ID# Date Sampled Sampler Sampler's Initials PASSESSA OF TRACE OF SO DELLAR STATE OF SO DELLAR STATE OF SO SO SO DELLAR STATE OF SO SO SO DELLAR STATE OF SO SO SO SO DELLAR STATE OF SO	/ CLIENT
Sample ID# Sampled Sampled Matrix Initials PLASSIFO GG TIME G TT. 35 SC DH PLASSIGN GG TIME G TT. 35 SC DH PLASSIGN GG TIME G CB: 10 SC DF FMS PLASSIGN GG TIME G CB: 15 SC DF FMS PLASSIGN GG	/ CLIENT
Sample ID# Sampled Sampled Matrix Initials PCA-SCIP OF TIETO CE: 10 SO FEMS PCA-SCO2T OF TIETO CE: 25 SO FEMS PCA-SCO34 - OF TIETO CE: 25 SO FEMS PCA-SCIB- OF TIETO CE: 25 SO FEMS PCA-SC	/ CLIENT
Sample ID# Sampled Sampled Matrix Initials PCA-SCIP OF TIETO CE: 10 SO FEMS PCA-SCO2T OF TIETO CE: 25 SO FEMS PCA-SCO34 - OF TIETO CE: 25 SO FEMS PCA-SCIB- OF TIETO CE: 25 SO FEMS PCA-SC	/ CLIENT
Sample ID# Sampled Sampled Matrix Initials PCA-SSED GG 7/M/19 07.35 CC DH PCA-SSO34-090 7/M/19 08:10 SO DF MS PCA-SSO34-090 7/M/19 08:15 SO DF MS PCA-SSO34-090 7/M/19 08:15 SO DF MS PCA-SSES-090 7/M/19 08:	/ CLIENT
Sea - Sea - Cor Tielog Cor 15 So JF & MS So JF & M	
CA-SS034-096 7 Blog 08:15 SO JF ITS SO JF ITS SO DH SO SO DH SO SO DH SO SO DH SO SO SO SO SO SO SO S	
11CA 95,184 - 09C 7/18/109 CE:25 SO DH	
10A-55183-090 7/8/09 08:15 SO DH 10A-55035-090 7/8/09 08:15 SO JF fMS 10A-55036-090 7/8/09 08:35 SO JF fMS 10A-55036-090 7/8/09 08:35 SO JF fMS 10A-55179-090 7/8/09 08:55 SO DH 10A-55182-090 7/8/09 09:05 SO DH	
CA-SS 035-096 7/8/09 0845 SO NAMS CA-SS 036-096 7/8/09 0835 SO NAMS CA-SS 179-096 7/8/09 0835 SO NAMS CA-SS 182-096 7/8/09 0905 SO DH	
M-55036-UPC 718/19 0835 SO JF/MS M-55179-09C 71/1-109 1950 SO DH CA SS182-09C 7/18/109 0905 SO DH	
CA SS182-091 7/8/09 0905 SO DH	
CA-SSIE2-091 7/8/0905 SO DI)	11 No. 11
The same of the same that the same the	
10.12.15.10.11.11.12.12.14.15	A STATE OF THE STA
GCA SSJED-OK 718/01/650 SO. 18/MW	——————————————————————————————————————
XA-SSBI-004HBI(191810 SO PENNIN)	
Relinquished By: Date/Time Received By: Relinquished By: Received for Laboratory B	By: Date/Time
Relinquished By: Date/Time Received By: Date/Time Shipper: Airbill No.:	
Relinquished By: Date/Time Received By: Lab Comments:	Temp:

Frederick, MD 21703 Contract #/Billing Reference (301) 694-5310 Fax (301) 620-0731 Pgs. **Turnaround Time** CTO-11 Camp Johnson # of Containers Client: 0h2m HILL Container Type 0000 NA 0000 N Send Results To: TENTALEVE PALETE Preservative Used Address: 100 Chewhold St Ste 101 Type of Analysis Phone: Date Sampler's Time Sample CLIENT Sample ID# Sampled Sampled Matrix Initials COMMENTS 50 A SSUBZ-UK KA-95141-190 Received for Laboratory By: Relinquished By: Date/Time Received By: Relinquished By: Date/Time Relinquished By: Received By: Date/Time Shipper: Date/Time Airbill No .: Relinquished By: Received By: Lab Comments: Temp: Date/Time

G.P. W.O

7210A Corporate Court

7210A Corporate Court Frederick, MD 21703 (301) 694-5310 Fax (301) 620-0731

Contract #/Billing Reference		
377812 FIFS	2 of	Pgs

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	Client:	O HILL	indulated and in the	e la ilababa	4.3	# of Cont	ainers	/		/	/	1	/		/	1	7 /
	Send Results To:		ove N	(ME)		Containe		1802 Ja	1802h	/				<u> </u>			7 /
	Address:		rland	77 5	te 101	Preserva Used	tive	IONE/1	ione/	- /						/ :	70/
	Virginia	Bench	IVA :	234/2	_	Type of	and a									1,3)
	Phone: 757	1671	16284	1		Analysis	158x	/	/ /	/	/ /	/	/ /	/ /	/		
	Sample ID#	Date Sampled	Time Sampled	Sample Matrix	Sampler's Initials	111/2	10/21									/	CLIENT COMMENTS
C	ICA-55/86-09C	7/8/109	1110	SO	DH	><				T							
a	CA-SS186D-0	9C 7/8/07	1115	50	DH	\times											
CJ	CA-SS187-09C	7/8/09	1120	SO	DH	><								1,800			
CJ	CASS187-096-S	D	1120	SO	DH	\times										MS	D
CJ	CA-SS187-09C-1	ms	1120	SO	DH	><					As -					MS	
CU	CA SS121-09C		1050	SO	EBIMW	\times											
Cur	CA-SS124-09C		1105	50	EB/MW	\geq											
Cui	CA-55130-09C		0950	SO	EB/MY	$\geq \leq$											
CU			0955	SO	EB/MW	$\geq \leq$										DUPL	ICATE
	(A-55/34-09C		1020	50	EBIMW	$\geq \leq$											
		-\$0	1020	SO.	-B/MW	\geq	. :	-								MS	0
CU	CA-55/34-096		1020	SD	EB/MW	><							1			H	
	Relinquished By:			e/Time	Received B				Relinquis					ived for L	aboratory	/ By:	Date/Time
	Relinquished By: Date/Time Received				Received B	y:			Date/Time	e Shipp	oer:		Airbil	l No.:	st.		
	Relinquished By: Date/Time Received I				Received E	By: Lab Comments:								Temp:			

G.P. W.O.

7210A Corporate Court Frederick, MD 21703 (301) 694-5310 Fax (301) 620-0731

Contract #/Billing Reference				
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Project:	и сам	P JOHn	con		Turnarour	nd Time	/		7	/	7	7	/	7	1	//
Client: CLION	1 4111	-	miles I. I.		# of Conta	ainers	/				/					7 /
Send Results To:	Genev	IPVP N	LOORE	5	Container		(802)	1/8/23/14			/		/	_		/ /
Address: 57/	none	vehna	1 St S	te 101	Container Type Preservative Used Type of Analysis											
Vikamio	Beach	VA 1200	52346	2	Type of	Type of										
Phone: 757-	671-6	284			Analysis	Willia /	/	/ /	/	/ /	/ /	/ /	/ /	/ /	18/	
Sample ID#	Date Sampled	Time Sampled	Sample Matrix	Sampler's Initials	OF ST	in H		/							/	CLIENT
CJCA-SS/25-090	7/8/09	1130	SD	EB/MW	><											
CUCA-SS126-096		1140	SO	CB/mW	\times											
CUCA-SS/32-09	C	1025	SU	EB/my	><											
CJCA-SS041-096		1/45	SO	JF#MS	><											
CUCA-SSOUD-O	90 .	1145	SO	JF FMS	\geq					44					Du	LICATE
OUCA-55042-0	9C	1155	So	UFEMS	><		:1								MS	D7
CUCA-SS042-09	0-SD	1155	SO	JEGMS.	\searrow											N-
CJCA-55042-0	9C-MS	1155	SO	UF FMS	25	w							-		MS	}
CUCA-55163-0	196	1210	SO	DH	$\geq \leq$											
CUCA-SSI63D		12/5	SO	DH	$\geq \leq$							-				
CUCA-SS162-0	90	//55	SO.	DH	\times			-		-				-		
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neiinquisned by.		Dat	e/ Time	neceived b	у.			Relinquish	iea By:			nece	ived for L	aboratory	у Бу.	Date/Time
Relinquished By								Date/Time	Ship	pper:		Airbil	l No.:	·		
Relinquished By	Received B	By: Lab Comments:								Temp:						

7210A Corporate Court Frederick, MD 21703 (301) 694-5310

Contract #/Billing Reference	

Fax (301) 620-0731 Pgs. of **Turnaround Time** CTO II Camp Whisen Client: 0/12/11/11/11 # of Containers Container Type Send Results To: Genevieve Mocre 686 Color Mo Preservative Used Address: Type of Analysis Phone: Sample Sampler's Date Time CLIENT Initials Sample ID# Sampled Sampled Matrix COMMENTS VE SIMS A-52040000C) FAMS 1320 A-SS144-09C JE THIS 1310 SO JF4MS -A-SS043-09C EM CA - EROTOURA Blank Equipment Blank exca-50119-090 A-55/23 070 CA-55049-096 CASS049-09C-MS 718/09 1400 Relinquished By: Received for Laboratory By: Date/Time Received By: Relinquished By: Date/Time Relinquished By: Received By: Date/Time Shipper: Airbill No.: Date/Time Lab Comments: Temp: Relinquished By: Received By: Date/Time

7210A Corporate Court Frederick, MD 21703 (301) 694-5310 Fax (301) 620-0731

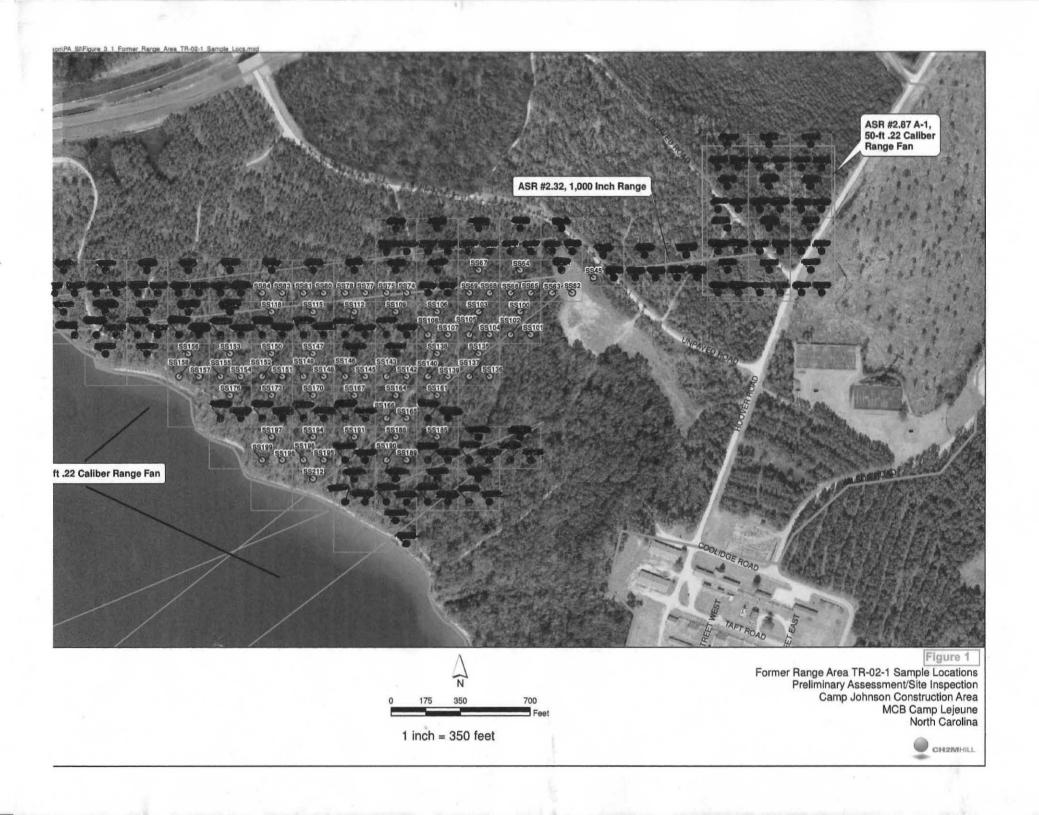
ntract #/Billing Referencé	
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								Fax	(301) 620-0	731	House one			anguras.		_ of	Pgs.
	Project: (70-)	1 Car	no Joh	nson	ie .	Turnarou	nd Time	-/		/		/ /	/	-/			
Ī	Client:	M H	LL			# of Cont	ainers									/	//
Ī	Send Results To:	FEDEL	INVE	MARK	-	Containe		Ear	1602 M			<i>/</i> ,			_		a. /
Ī	Address: 570	Offer	eland	10+18	to 101	Preserva Used	Preservative none none										
Ī	Virginia	Beach	h VA	2211	2	Type of Analysis	/pe of / / / / / / / / / / / / / / / / / /										
Phone: 757-671-6294							1	/	/ /	,	/ ,	/ /	/ /	/	/ ,	/20/	
Date Time Sample Sampler's Sample ID# Sampled Sampled Matrix Initials																/	CLIENT
	A SS049-09C-S	n Theor	1400	50	JF/mc	100			1			f			1	Mei)
1/	A-55652-09G	7/8/09	1345	50	JF/ms	5	X									7.132	
€	A-98193D-09	7/8/09	1440	So	DH									1		Dup	LICATE
0	A-55193-09C	7/8/09	1425	56	DH	52											
	1-55/92-09C	7/8/09	1425	SOL	ZH	><					Les I	THE STREET					
4	50052 696	111/107	1345	37	- THIS	X											
CA	1-55/16-09C	718/09	1320	Sa	EB/mm	\times											
CA	SS117-096		1330	50	(B/mw	\times											
61	1 SS122-09C		1420	SO	tB/my	><											
€.	A-55046-096		1445	50	JF/ms	><								-			
-	A SS046D-09	61	1445	50.	UFFMS	><	1							4			
0	CA-550470	yc V	1510	50	UFTMS	><										1.00	
	Relinquished By:	1 0	1-1	e/Time	Received B	y:			Relinquis	ned By	:		Rece	ived for I	Laborator	у Ву:	Date/Time
	-CA	L	7/8/0	1630		*											
	Relinquished By:	Received B	y:			Date/Time	Ship	oper:		Airbil	l No.:						
Relinquished By: Date/Time Receive						by:	10173		Lab Comments:								Temp:

7210A Corporate Court Frederick, MD 21703 (301) 694-5310 Fax (301) 620-0731

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	-						1 101	(301) 020-0	L						OI .	1 go.
Project: CTo	11 0	amp Jo	hnsor)	Turnarou	nd Time	/	/ /	/	/			/			_/ /
Client: (112)	m Hil	1			# of Cont	ainers										/ /
Send Results To:	Finev	ieve I	Vive		Containe		Boy	1/801	/		<i>/</i>		/	<u> </u>		a. /
Address: 570	0010	velano	1 st	telol	Preserva Used	tive //	one 1	we/	/	/					_/ ;	70/
Vilain	io Bei	214 1	14 2	34/2	Type of	1			/		/	/	/	/	13	
Phone: 757-	1071-	10294	-		Analysis	(Contract		/ /	,	/ ,	/ /	/ /	/ /	/ /	7 8 A	/
Sample ID#	Date Sampled	Time Sampled	Sample Matrix	Sampler's Initials											/	CLIENT
CXA-SS073-090	7/8/09	1520	20	DH	><											
03CA-SS076-07C		1505	So	DH]	><											
UCA-55053-090		1600	50	JF & MS	\geq	-										
OJCA SSOSAD-O	96	1600	50	JF gras	><										DUP	LICATE
CUCA-5954D-0	R.	1545	50	JF FINS	><										DUP	LIGITE
CUCA SSUSULO	76	1545	500	1 This	><										DU	0
Cica ssost-on	a V	1615	50	JEGMS	><											
	120000															
															4	
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Relinquished By: Date/Time Received					y:			Date/Time	Ship	per:		Airbi	ll No.:	¥		
Relinquished By: Date/Time Received					By:			Lab Comments:								



7210A Corporate Court Frederick, MD 21703 (301) 694-5310 Fax (301) 620-0731

Contract #/Billing Reference

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Project: CTO-	11 00	un ju	hason		Tumarour	nd Time	/	Jarlas	/	/	/	/	/	/	/	
Client: CHZ H	4 151	í			# of Conta	ainers		1/	/							///
Send Results To:	Cienes	neve k	Loore		Container		Lipol	1//		/				/		/ /
		veloud			Preservat Used	ive /	HNOY		/	_/		/	_/	/	_/	N. N. S.
		Brack			Type of	ontainer Type reservative sed ype of nalysis										
Phone: 75	1-671	- 628	14		/	(" US	,	/ /	/	/ /	/	/	/	/	8/	
Sample ID#	Date Sampled	Time Sampled	Sample Matrix	Sampler's Initials	12.0			/		/				/	/	CLIENT COMMENTS
CICA - TW29-	7/25	110:45	AQ	K5	X											
(14) -71V30-	7/25	18:10	AQ	KR	X											73
CJCA - TIV33-	7/25	17.20	AQ	53	X											
CJCA - TWILL-	7125	17:05	AQ	05	X											-ye
CJEH - TIV 372 -	7125	13:30	AQ	DS	X											
012509-15 CKH -TWIS-	7/25	7:50	AQ	BP	X			1 1 14								
CKH -TWIS-	7/26	11:05	AQ	DS	X											
CH = 71-20	7/26	10:15	AQ	05	X											
GKA - TW21-	7126	9:20	AQ	KS	X											and the same
CULA-TUVIA-	7/26	TEGO	AQ	KS	X		1								1	7 7
CJCA - TWIZ -	7/20		AQ	K5	X											
CJEA - TIVIY			AQ	103	X											
Relinquished By:			e/Time	Received B	By:			Relinquish	ned By:			Rece	ived for L	aboratory	By:	Date/Time
KINSV	realy	17/27	5:15		+									-		
Relinquished By:		Date	e/Time	Received B	By:			Date/Time	Ship	per:	100	Airbil	No.:			
Relinquished By:		Dat	e/Time	Received E	Ву:			Lab Comr	nents:		-				7,1	Temp:

G.P. W.O.

7210A Corporate Court Frederick, MD 21703 (301) 694-5310 Fax (301) 620-0731

Contract #/Billing Reference

Pgs. Project: CTO-11 Camp John sun **Tumaround Time** anda 45 CH2M Hill # of Containers Client: Send Results To: General Moore Container Type 686 CO/02 ANO Preservative Address: Two cleveland St Used Type of Virginia Bruck, IVA Analysis Phone: 757-671-6284 Date Time Sample Sampler's CLIENT Sample ID# Sampled Initials Sampled Matrix COMMENTS 11:55 7/25 DB 7/26 50 DB 8:40 parent sample 7126 8:10 DR 50 7/26 8:40 NB MIN CUCA : 5803-7 7 26 10:30 50 7126 14-10 15:05 J(A-コウロキー 10:45 SB 7/26 13:10 X 50 7126 8:50 Relinquished By: Date/Time Received By: Received for Laboratory By: Relinquished By: Date/Time 7/245:15 Relinquished By: Received By: Date/Time Date/Time Shipper: Airbill No .: Relinquished By: Received By: Lab Comments: Temp: Date/Time

G.P. W.O.

Project: CTU-11 camp Johnson

Send Results To: Genevieve Moore

Date

Sampled

7/26

7/26

7/26

15706 Cleveland St.

Virginia Brach, VA

757 - 671-6224

Time

Sampled

110:15

16:20

17:00

9:45

9:45

Sample

Matrix

AQ

50

50

Date/Time

Date/Time

Date/Time

CHIM HILL

Client:

Address:

Phone:

Sample ID#

2- 705C

WIR - SDII -JEA - SBUT -

215-5605-Z

Relinquished By:

Relinquished By:

Relinquished By:

7210A Corporate Court Frederick, MD 21703 (301) 694-5310 Fax (301) 620-0731

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Tumaround Time # of Containers

Container Type

Preservative Used

Type of

Sampler's

Initials

DIB

DB

Received By:

Received By:

Received By:

Analysis ,

Contract #/Billing Reference Pgs. 2000 NA. CLIENT COMMENTS Daven SOURPC Received for Laboratory By: Date/Time Relinquished By: Shipper: Airbill No .: Lab Comments: Temp:

G.P. W.O.

Date/Time

7210A Corporate Court Frederick, MD 21703 (301) 694-5310 Fax (301) 620-0731

Contract #/Billing Reference

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Project: C70-	I (n	Ho Egm	nin Sain		Tumarour	nd Time	/	rando 45		-/	> /	7	7	7	/	
	MH		-		# of Conta	ainers	/1	/3		1/1						7 /
Send Results To:			diane.		Container		الماما عا	Word VW	Sajai	1->	/		/	Ĺ,		/ · /
Address: 5700	2 (10)	Veland	51.		Preservat Used	tive /	MOE	HEI/	/						_/ å	X9/
		Bruch			Type of	ontainer Type esservative sed /pe of nalysis CLIEN COMME										
Phone: 157-671-6284						Type of Analysis										
Sample ID#	Date Sampled	Time Sampled	Sample Matrix	Sampler's Initials	No.	2/10/	1/3	3/3	3/	/					/	CLIENT
COPA-TWEE-	7/27	12:05	Aa	DS	X											
09C	7/27	10:25	AQ	bs:	X									Egg		
C3FA = TN24-	7/27	9:25	AQ	DS	X											
CJ CA - TIVZYD-	7/71	9:30	AQ	172	X											
1815 - TISUI -	7/27	16:35	AQ	K5		X										
1815-5BOY-	7/27	9:00	SO	DB		X	X	X								1111111
相写写887-2	7/27	12:10	SO	DB		X	X	X								
PLIS TSIBORT	7/27	11:10	So	DB		X	X	X								
														ŀ		
Della solale d D		I Det	e/Time	Description				5 "				I Dean	brand faul		. D	Data/Fime
Relinquished By:	Received E	sy:			Relinquist	ned By			Hece	ived for L	aborator	у ву:	Date/Time			
Relinquished By	Received B	By:			Date/Time	Ship	pper:		Airbil	ll No.:						
Relinquished By: Date/Time Received						Lab Comments:										Temp:

7210A Corporate Court Frederick, MD 21703 (301) 694-5310 Fax (301) 620-0731

Contract #/Billing Reference

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Project: CTO-	((n	to E g mi	nin Soin		Tumarou	nd Time	/	rando of	-/	-/	> /	/	/	/	/	
Client: CHZ	MH	SH	*		# of Conta		/1	/3		//	/	/	/		/	///
Send Results To:			doore		Containe	r Type	1 E 1 2021		Salai	1-	/		/		L	0./
Address: 5700	1 1/10	Veland	51.		Preserval Used	tive /	1100	HCI/	/						100	~
Vivo	wa I	Bruch	VA		Type of	1 3	/	appleon	10/51	/	/		/	/	100	
Phone: 15	1-67	1-628	4		Analysis	1 30 g	,	My July	12/	/ /	/ /	/	/ /	/	8/	
Sample ID#	Date Sampled	Time Sampled	Sample Matrix	Sampler's Initials	No.	2/10/	1/3	HE LINES	3/						/	CLIENT COMMENTS
CICA -TWEW-	7/27	12:05	Aa	DS	X											
131A - TW25-	7/27	10:25	Aa	bs:	X									E		
C37A - TN24-	7/27	9:25	AQ	DS	X											
CJ CA - TWZYD-	7/71	9:30	AQ	172	X											
IRIS-TRW-	7/27	16:35	AQ	K5		X										
1215-5804-	7/27	9:00	SO	DB	X	X	X									
程15年5807-2	7/27	12:10	SO	DB		X	X	X								
1815 7 5130KZ	7/27	11:10	So	DB		X	X	X								
					-											
B. F		1 54	- T	D : 15								I Daniel	to and for all		Pow	Data/Fina
Relinquished By:	laus		Time	Received E	sy:			Relinquist	ned By:			Hece	ived for L	aboratory	у ву:	Date/Time
Relinquished By:		Date	e/Time	Received E	By:			Date/Time	Ship	per:		Airbil	l No.:			
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G.P. W.O. ____

Frederick, MD 21703 Contract #/Billing Reference (301) 694-5310 Fax (301) 620-0731 Pgs. **Tumaround Time** CTO-11 Your Dudanson # of Containers Client: 100 Container Type Send Results To: Greeneve Moore Preservative Used Address: 5 to developed st Type of Virguia Beach, VA Analysis Phone: · U71-6284 Sampler's Date Time Sample CLIENT Sampled Initials Sample ID# Sampled Matrix COMMENTS 7/25 17:40 DB 7/25 56 17:03 SB CJGA-SB200 50 7/25 17:08 SB 16:55 7/25 50 10:35 16:00 50 14:00 7/24 8:40 DUVINH SUMPLE 50 DB 50 8:40 DB 10:10 Relinquished By: Received By: Received for Laboratory By: Date/Time Date/Time Relinquished By: Relinquished By: Received By: Date/Time Shipper: Date/Time Airbill No .: Relinquished By: Received By: Lab Comments: Temp: Date/Time

7210A Corporate Court

7210A Corporate Court Frederick, MD 21703 (301) 694-5310 Fax (301) 620-0731

Contract #/Billing Reference

Pgs. Project: CTO-11 Camp Johnson Hardo **Turnaround Time** # of Containers CH2M Hill 10069 Send Results To: Genevieve Moore Container Type (46 Coller 110 Preservative HNUS Address: 5700 Cleveland St Used Type of Vinglara Brack, VA Analysis Phone: 757-631-6284 Sample Sampler's Date Time CLIENT Sample ID# Sampled Sampled Matrix Initials COMMENTS CICA - 5826 -7/23 17:00 50 **B**B 7/23 17:15 SB 50 4-7-040 CJGA TS PAC 5B 14:35 CUCA -SB35-7/24 8:50 50 NB 744 OCA - TWZ4 11:50 CUCA - TIVIT 7/24 8:35 Relinquished By: Date/Time Received By: Received for Laboratory By: Relinquished By: Date/Time Relinquished By: Received By: Date/Time Shipper: Airbill No .: Date/Time Relinquished By: Received By: Date/Time Lab Comments: Temp:

7210A Corporate Court Frederick, MD 21703 (301) 694-5310 Fax (301) 620-0731

Contract #/Billing Reference of

Pgs.

Project: CTU-	11 (a)	mp Jo	WIN SOM		Turnarour	nd Time	1	nordad/	/	/	/	/	/	/	/	
	HAH				# of Conta	ainers		1/								
Send Results To:	Graph	INUE M	3010		Container	-	(Su.)	1/				/		/		/ /
Address: 54	00 C	levela	nd SI		Preservat Used	_/	/		/	_/		/	/	/	1000	70/
V.		Beac			Type of Analysis	150	/	/					/		100	
Phone: 35	7-6	71-62	84		/		/	/ /	/	/		/		/	3/	
Sample ID#	Date Sampled	Time Sampled	Sample Matrix	Sampler's Initials	801	1		/							/	CLIENT COMMENTS
0-4-09G	7/23	12:30	50	DB	X											
CJCA - 3059- 2-4-09C CJCA SB 546- 2-4-09C	7/23	13:50	50	DB	X											
2-4-09C	7/23	13155	50	DB	X											25
CJ(A-5041-	7123	15:25	50	DB	×											
CACA - 5 5 300-	7/23		50	DB	X											
		=														
Relinquished By:	na	The second second	7.30	Received B				Relinquish				Recei	ived for La	aboratory	у Ву:	Date/Time
Relinquished By:	Received B	y:			Date/Time	Ship	per:		Airbil	l No.:						
Relinquished By:		Date	e/Time	Received E	By:			Lab Comn	nents:							Temp:

G.P. W.O. ____

7210A Corporate Court Frederick, MD 21703 (301) 694-5310 Fax (301) 620-0731

Contract #/Billing Reference of Pgs.

Project: CTo-	11 Car	mp Joh	mson		Turnarou	nd Time	/	tourdayd Sta	actard	7	1	/	1	/	/	
Client: CH 2 A	4 11 (# of Cont	ainers		1/1								7 / 1
Send Results To:	Gener	reve 1	Yours		Containe		koz jo	V/802. Jay								
Address: # 700					Preserva Used	tive /	/		/	/					100 98	No.
		Bruch	The same		Type of	150	/	/				/			100	
Phone: 75	1-671	- 6281	4		Allalysis	15 m		/ /	/	/ /	/	/	/	/	8/	
Sample ID#	Date Sampled	Time Sampled	Sample Matrix	Sampler's Initials	Analysis	1		/							~/-	CLIENT COMMENTS
CJCA-5805-2	7/22	17:15	So	DB	X											
CJCA - 5847-6	7/22	15:45	So	DB	X	X										
CJCA -SBUT-	7/22	16:30	So	DB	X											
CJCA - 58437	7/22	17:50	50	58	X			100	174							
CJCA = 3845-	7/22	17:10	50	SB	X											
CATA -SBUSD - 2-5-09C	7/22	17:15	50	3.B	X											
CUCA-SP 32-09C	7/22	16:30	50	SB	X											
CJ(A-51203-	7/23	10:10	50	DB	X											
7-09C	7123	n: 00	50	SB	X											
CJCA . 5833-	7/23	940	50	5B	X											
130A-5831-	7/23	10:45	00.	SB	X											
CACA - SIBSID -	7/25	10:50	50	SB	×											
Relinquished By:		3-300	e/Time	Received E	By:			Relinquish	ed By:			Rece	ived for L	aboratory	By:	Date/Time
RANSI	au	7/23	5:30		E		*									
Relinquished By		Date	e/Time	Received B	By:			Date/Time	Ship	per:		Airbil	No.:			137.15
			-)	y.					1							-
Relinquished By		Dat	e/Time	Received E	Ву:	161-		Lab Comr	nents:							Temp:
								3			5 .					

7210A Corporate Court Frederick, MD 21703 (301) 694-5310 Fax (301) 620-0731

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Contract #/Billing Reference of

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Project:	. 7	-			Turnarour	nd Time		slarlan	- ol/	7	7	7	7	7	7	///
Project: CTO-			Moon		# of Conta		-/-	3	1		-	-	21/		/	-/ $/$
Client: CHZF	4 Hot								Amin	1/12 Anos	7/22.4	11 124	/	/	/	/ /
Send Results To:	Grene	inque	Muore		Container				LIM			115 1	/	/	-	20.
Address: 5 %	o cle	vilanc	1 5+		Preservat Used	ive /H	d/	1003/	/		NO3/	_/	_/_	_/	3	7
		Beach			Type of Analysis	/ -	15	J.5 0	/	5	3/00, 5	7	/		100	
Phone: 75	7-67	1-628	Ч		Allalysis		De J	130 13	2	1 9	8 N. J	/	/	/	8/	
Sample ID#	Date Sampled	Time Sampled	Sample Matrix	Sampler's Initials	120		15	100	100	5/3/3					/	CLIENT
1285-MWOI-	7/23	8:42	AQ	DS	X	X	×	X								
1885-789-		9:25	1	PZ	X											
ESTA -TWIT-		9:40		122	X	X	X	X								
OAL	4	14:20	N.	KS					X	X					high tus	b.
Relinquished By:		7/23	S30	Received B	ita			Relinquish				Rece	ived for L	aboratory	/ Ву:	Date/Time
Relinquished By:		Date	e/Time	Received B	ly:			Date/Time	Ship	per:		Airbil	l No.:			
Relinquished By		Dat	e/Time	Received E	By:			Lab Comn	nents:							Temp:
		-														

7210A Corporate Court Frederick, MD 21703 (301) 694-5310 Fax (301) 620-0731

Contract #/Billing Reference	
	of

Project: CTO-	11 6	Lamp	ohu son		Tumarour	nd Time	/	Sight	lardy	/ /	7	7	7	1	1	//
Client: CHZA	a Hin				# of Conta	ainers	/	1/	/							7 / 1
Send Results To:			doore.		Container		/L pil	1/1LPM	/			/	/	/		
Address: 5400	clev	eland	SI		Preservat Used	ive /	160/		1						_/ .	40/
		Brack			Type of	1500	/1	50			/	/	/	/	300	
		71-0			Analysis		20 (3)	1		/ /	/ /	/	/ /	/	8/	
Sample ID#	Date Sampled	Time Sampled	Sample Matrix	Sampler's Initials	200		Y		/						/	CLIENT
CICA - THISE -	7/23	13:15	AQ	DS											Dave	+ Sample
CHE-TWSS- CHE-MS	1	13:15	1	DS											MS	
-04C-SD	1	13:15		DS											MSI	
-04C.		14:30		KR												
-01C		16:50		05												
- 69C	1	15:20	4	DS												
			-													
Relinquished By:	cur	Date 7/20/9	Received B				Relinquis					ived for L	aboratory	Ву:	Date/Time	
Relinquished By	Relinquished By: Date/Time Receiv							Date/Tim	e Sh	ipper:		Airbil	I No.:			
Relinquished By		Dat	e/Time	Received B	ly:			Lab Con	ments							Temp:

7210A Corporate Court
Frederick, MD 21703
(301) 694-5310
Fax (301) 620-0731

Contract #/Billing

Contract #/Billing Reference		
Software William & Figure 100		-
	of	Pgs
	of	P

Project: CTU-1	1 Ca	up Joh	N SOM		Tumarour	nd Time	/	stardardst	undar	7	1	1	7	1	1	//
Client: CH 2 M	H:0				# of Conta	ainers		1/1								7 / 1
Send Results To:	Gieves	neve 1	Woode		Container		12 POH	1/12 poly								/ / .
Address: 510	o cle	vetave	St.		Preservat Used	ive /H	NOS/		/						_/ :	40/
V./	mile	Brach	, VA		Type of	150	100	13/		/		/	/	/	1 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	
Phone:	57-0	71- 62	84		Analysis	3 3/2	8 26	1 /	/			/	/	/	8/	
Sample ID#	Date Sampled	Time Sampled	Sample Matrix	Sampler's Initials	Analysis	1 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3		/						/		CLIENT
CICA-TW35-	7/22	10:00	AQ	05	X	X										
CICA - TWEED-	7/22	16:05	AQ	05	X	X										
CJEA + TW37-	7172	10:40	AQ	DS	×	X										
Relinquished By			5:30	Received E	*			Relinquis				Rece	ived for L	aboratory	/ By:	Date/Time
Relinquished By	Relinquished By: Date/Time Receiv							Date/Time	Ship	pper:		Airbil	l No.:			
Relinquished By		Dat	e/Time	Received E	Ву:			Lab Com	ments:							Temp:

7210A Corporate Court Frederick, MD 21703 (301) 694-5310 Fax (301) 620-0731

Contract #/Billing Reference	
	of

Project:	II Cak	y John	Sma		Turnarou	nd Time	1	landard 1	and my	augard/s	hardend/s	arear /	4+00-9/	brode if	1	//
THE RESERVE TO SERVE THE PERSON NAMED IN COLUMN TO SERVE THE PERSO	H:H I	T-STA	3011		# of Cont	ainers	/1	/1	1	/1	/	/1	/	1/		7 /
Send Results To:	Gene	1:0140	MOOVE		Containe	гТуре	184.50	1801. YV	4400 V	1 H MA	/ MANON	Lanks	LOW	/		7 /
Address:		veland	St.		Preserval Used	tive /	/	1	0 /	NOW	/	/1	NO3/		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	70.
Vivainia			A		Type of	13	1	10	/	/	10	- /	4		100	
		- (028	4		Analysis	1301	/	1	Fa 15	1	1/2	3 30	/	/	2/	
Sample ID#	Date Sampled	Time Sampled	Sample Matrix	Sampler's Initials	100	1	1/3	1 / E	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	10/3	10 mm	1			/	CLIENT COMMENTS
1-09G	7/21	10:15	So	DB	X											
CICA-5873-4	7/21	1000	So	DB	X	X					200	1				
CICA -5874-1	7/21	12:15	50	DB	X					1-0	k t					
CHCA - 3875-	7/21	12:36	50	DB	X			100	70	,						*
QCA -5678-	7/21	15:00	So	DB	X		V	TES .								
63CA - 587Z- 4-10-09C	7/21	10:10	SO	DB	×		1									
1285-Tiglion	7121	17:50	AQ	RS												
1885 -MWUS-	7121	17:20	AG	DS			X	X	X	X	*					7
CYA-FEOI-19	7/21	17:40	AQ	RS			1				X					
4-09G	7/21	17:50	50	bB	X			1							>	
2-096	7/21	16:40	50	DB	X											
CICA - 5676-	7/21	17:10	50	DB	X											
Relinquished By		0.00000	e/Time 10:30	Received E	By:			Relinquis	hed By:			Rece	ived for L	aborator	y By:	Date/Time
Relinquished By		Date	e/Time	Received B	By:			Date/Time	e Ship	per:		Airbil	l No.:			
Relinquished By		Dat	re/Time	Received E	Зу:			Lab Com	ments:							Temp:

G.P. W.O. _____

7210A Corporate Court Frederick, MD 21703 (301) 694-5310 Fax (301) 620-0731

Contract #/Billing Reference

of Pgs.

Project: C70-	11 (a	mp Jo	nncon		Turnarou	nd Time	/	Jay day	/	7	/	1	1	/	1	
Client: CI47 IU	Hall				# of Conta	ainers	/	1/							/	7 /
Send Results To:		ieve L	loore		Containe		12 part	1		/	(/ / /
Address: 54	DO C1	evelau	d St.		Preservat Used	tive	100 /								_/ å	40/
Viv	q dia	Brack	u, vA		Type of	13 6		/	/	/		/	/	/	**************************************	
		71-67		1	Analysis		/	/ /	/	/ /	/	/	/	/	8/	
Sample ID#	Date Sampled	Time Sampled	Sample Matrix	Sampler's Initials	50,0	5/									/	CLIENT
072101-15	7/21	17:00	Na	BP	X											
							1									
						-										
4.5						111	and the same of									
		7.														1
									1							
								-								8-
			,	-				-	-	-						
Relinquished By		Date	e/Time	Received E	By:			Relinqui	ahad Du			Poor	ived for L	aboraton	, By:	Date/Time
DASha		7/22	r leceived L	y.			neiinqui	sned by			nece	ived for L	aboratory	, by.	Date/fille	
Relinquished By	Received E	By:			Date/Tin	e Ship	oper:		Airbil	l No.:						
Relinquished By	Relinquished By: Date/Time Received							Lab Con	nments:							Temp:
															1	1
								1000	The same of						-	

7210A Corporate Court Frederick, MD 21703 (301) 694-5310 Fax (301) 620-0731

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Contract #/Billing Reference

Pgs. Jandard Sandare Project: CTO-11 Camp Johnson **Turnaround Time** Client: CH2M 1511 # of Containers BOD MI Send Results To: Genevieve Moore Container Type 646 COOP NO. Preservative Address: 5100 cleveland St Used Type of Virginia Brach, VA Analysis Phone: 757-671-6284 Time Sampler's Date Sample CLIENT Initials Sample ID# Sampled Sampled Matrix COMMENTS 7/22 10:20 DB CA-5675-2 7/22 50 10:25 CJCA - 5861-2 50 7/22 9:30 DB 30A - 5854-50 10:50 avent sample 7/22 DIS CJUI - 3854 15:50 DB CACH 3854-7122 10:50 SO DB MSD CKA-SISTE-7/22 13:50 50 DB CA-SETUD 7/22 13:55 50 DB CICA -5342-7 22 13:20 DB CJCA - SEU8-7/22 SU DB 14:20 CJCA -5800-7/22 14:45 DB Relinquished By: Date/Time Received By: Received for Laboratory By: Date/Time Relinquished By: Shaw Shipper: Relinquished By: Date/Time Received By: Date/Time Airbill No .: Temp: Relinquished By: Received By: Date/Time Lab Comments:

7210A Corporate Court Frederick, MD 21703 (301) 694-5310 Fax (301) 620-0731

Contract #/Billing Reference

							2	301) 020-01							VI	ryail
Project: CT	0-11				Tumarou	nd Time	,	D.	00	a trad	1	,	-		(()
Client:	2m	HILL			# of Conta	ainers	/ 3	3 /	/							7 /
Send Results To:	April	vieve	Monte		Container		/40m	//								/ /
Address: 5700			St Ste		Preservat Used	ive /	101/		/						100	70/
Virgina					Type of	/	/	/	/		/	/	/	/	/00	9/
DI		- 624			Analysis	/	/	/ /	,	/	/ /	/	/	/ /	2/	
Sample ID#	Date Sampled	Time Sampled	Sample Matrix	Sampler's Initials	1	3/									/	CLIENT COMMENTS
1R17-TWOI-ORC	7/29/09	1415	GW		><											
IRESTABLE OR	7/30/09	0945	GW		X											
1885-Thous-090	7/30/09	0950	GUI		><										1	
\$15 TEVEOR	7/34/09	1200	Blank		><											
Ke-ther na-	7/3/25	1200	Blook		>4											
世のできるからな	7/30	1200	SW		><	N. T.										
1853-PURTOR	7/30	0910	610		>	*.										
3CA - EH02 - 07500	17/30	1245	Blank		><											
				1												
Relinquished By:) [7 30	e/Time	Received B	sy:			Relinquish	ed By:			Recei	ived for L	aboratory	Ву:	Date/Time
Relinquished By:		Date	e/Time	Received B	y:			Date/Time	Ship	pper:		Airbil	No.:	.,		
Relinquished By:		Dat	e/Time	Received B	By:			Lab Comm	nents:							Temp:

G.P. W.O. ____

7210A Corporate Court Frederick, MD 21703 (301) 694-3310 Fax (301) 620-0731

Contract	#/Billing	Reference
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Project: Turnaround Thrio Client: # of Containers Container Type 686 Color Mo Send Results To: Genevieue Moore Preservative Used Type of Analysis Phone: Sample Sampler's Date Time CLIENT Sample ID# Sampled Sampled Matrix Initials COMMENTS 1200 1895-1W-5-00C 1885-TOURT- UPC 0910 7/30 1245 Blank DS 31A-ERVZ-07349 Relinquished By: Received By: Received for Laboratory By: Date/Time Relinquished By: Date/Time Relinquished By: Received By: Date/Time Shipper: Date/Time Airbill No .: Relinquished By: Lab Comments: Date/Time Received By: Temp:

7210A Corporate Court Frederick, MD 21703 (301) 694-5310 Fax (301) 620-0731

Contract #/Billing Reference

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								/	7	7	1					
	-11				Turnarour	id Time		MG	(4)	The	1					
Client: (1)2	mille	ce			I we come	ations	/	1/1	/	1/1	/	1	1		/	
Send Results To:	Gener	irove	Moort	×	Containe		11	114	1/4	114	/				/	1
Address: 570	0 (1	evelan	d St	Steloi	Preserval Used	tive /	-/	- /#	103/-	-/	_/	_/	/	_/	1000	N. A.
Virania					Type of Analysis		130	1	15		/				100	5 /
Phone: 757	1-671	-628	24		Allalysis	0/	E	1=/	2/	/ /	/ /	/	/ /	/	8/	
Sample ID#	Date Sampled	Time Sampled	Sample Matrix	Sampler's Initials	10	/2	7/	3/3	/						1	CLIENT COMMENTS
IRI7-TWO1-09C	7/29/09	1415	GW		><	×	><	. ><								
1898-THOW 09C	7/30/09	0945	6W		×	><	×									
1895. TWOLD ORC	7/30/09	0150	ew		><	>/	><									
课完一年至1-1250日	1/2/19	1200	Black		><	×	><	356	(0)							
							-									
													-			
					-		-									
D. F. Jaha I.B.		1 54	75	D 1 15									16.1	1	D	Determine
Relinquished By:	-		/Sec	Received B	sy:			Relinquish	ned By:			Hece	ived for L	aborator	у ву:	Date/Time
Relinquished By:		Date	e/Time	Received B	y:			Date/Time	Ship	per:		Airbil	l No.:	*		
Relinquished By:		Date	e/Time	Received E	By:			Lab Comr	nents:							Temp:

G.P. W.O. ____

Nº .01691

CompuChem a division of Liberty Analytical Corp.

CHAIN OF CUSTODY

501 Madison Ave. Cary, NC 27513

Phone: 919-379-4100 Fax 919-379-4040

Courier
Airbill No.
Sampling Complete? Y or N

	ent/Reporting Information				Proj	ect Inf	ormatic	on				1000	Rec	uested	Analysi	s (inclu	de meth	nod and	bottle ty	pe)			Matric	ces
Company Name	the c		Project N	ame	17																			nd water
	HILL				0-11		CX	H														F 447 /1465		e water
Address 5700 Cl	eveland St Ste 10	21	Sampling	Location	10 Do	hn	son															-37/2015 5		e water ediment
City	State Zip		Turnarou	nd time	1							1										TB - 7	Trip Bl	ank
VIVOIDIA B	arli VA			Der	Curt	rac	+															RI - R	Rinsate	
Project Contact			Batch QC	or Projec	t Specific's	? If Sp	ecific,	which	Sampl	le ID?		1										WP -		THE
Cenevie	eve Moore											5										0 - 0	ther	
Phone # 757-6	71-6284		Are aque	ous sample	es field filt	tered fo	or meta	ıls? Y	or N)		101												
Sampler's Name			Are high	concentral	tions expec	cted?	Y or N	If ye	s, which	ch ID(s)?	=											/ Samp (Lab U	ole Info
100000000000000000000000000000000000000		Colle	ection			1	Numbe	r of Pr	eserve	d Bott	les													
											1	1 2												17.74
CompuChem No					# of		Ħ	33	H2S04	НС	10	2												
(Lab Use)	Field ID	Date	Time	Matrix	3100 0000	HCI	NaOH	HN03	42S	МЕОН	Other	07												170000
(allo 505)	CJCA-EBOI-071909-15	7/29		Elank	1			1				X												
2	Con Citivitis																							
												-										H	+	
																						\Box	+	
														.,1										
	TYTE WILL BE																							
	Vie Value of																							
		Li	ab Use On	lv				- 6			-					No. in		Com	ments					
Sample Unpacked E	By:			1	samples ch	necked	for su	fide &	chlor	ine? Y	or NA													
Sample Order Entry				1	enol samp																			
	n Good Condition? Y or N				oles checke																			
If no, explain:				2																				
		3555		-1 272	STATE OF THE PARTY			Sample	Custo	ody		1 1 1 1 1			10. 10			THE						
Relinquished by:	-P-Dir			Date/Ti	me: 7/	end!	(4)	17	30	Rece	ived by	/:							Date/	Γime:				
Relinquished by:				Date/Ti	me:					Rece	ived by	/:							Date/	Γime:				
Subcontact? Y or	N If yes, where?							Custo	ody Se	eal(s)	intact?	Y or 1	N	On Ic	e? Y (or N	H		Coole	r Temp	:			°C

CompuChem a division of Liberty Analytical Corp.

CHAIN OF CUSTODY

501 Madison Ave. Cary, NC 27513

Phone: 919-379-4100 Fax 919-379-4040

Courier
Airbill No.
Sampling Complete? Y or N

	ient/Reporting Information				Proj	ect Inf	ormati	on					Rec	juested	Analysi	s (inclu	de meth	od and	bottle ty	pe)		1	Matrice	es
Company Name	41		Project N	-																		GW - C		
CHZM	HILL			(TV		0	CA															WW -		-0.00 marketon
Address	11-1-1-1-1-	Lat	Sampling	Location			_															SW - S		S. Princetonia
City	Clareland St Ste	101	T	Can	79-10	nn!	SOM	_							913							SO - So		
Virginia B	THE PERSON NAMED IN COLUMN TWO IS NOT THE PERSON NAMED IN COLUMN TWO IS NAMED IN COLUMN TW		Turnarou		r Cor	+	+															TB - Ti		nk
Project Contact	IGZN VA		Batch OC		t Specific			which	Samn	le ID?							7410					WP - V		
Renovie	ve Moore		Daten QC	of Projec	t Specific	. II op	cerric,	willeli	Samp	ic iD.												O - Oth		
Phone #	V= 111001 €		Are aque	ous sampl	es field fil	tered f	or meta	als? Y	or N															
757-	671-6284																							
Sampler's Name			Are high	concentra	tions expe	cted?	Y or N	? If ye	s, whi	ch ID(s)?													le Info
												V)										0	Lab Us	e)
		Colle	ection				Numbe	r of Pr	eserve	d Bott	les	V												P. 1
									+	-	5	0												1000
CompuChem No					# of	_	NaOH	HN03	H2S04	МЕОН	Der ler	->												
(Lab Use)	Field ID	Date	Time	Matrix	bottles	HCI	Na	H	H2	ME	Other Mr Bi													
	IRIS-5803-2-7-096	7/29	1330	50	3					1	2	X												
	IRIS-3801-4-6-09C	7/29	1320	So	3					1	7	X												
										,	-													
	1R15-SB16-2-4-09C	7/29	1400	So	3					1	2	X												
	CYA-TB072909	7/29	1555	Blank	3	3		-				\times												
	IRI7-TW02-09C	7/29	1505	GW	3	3						X		4		te.								
	IPM-THU20-09C	7/29	1510	AW	3	3																		
	TELL- INDEO OF	1121	1010	(7.14	2							\wedge												
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	n Good Condition? Y or N				oles check															4				
If no, explain:																								
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Relinquished by:				Date/Ti	me:	-				Rece	ived by	:					7161		Date/	Γime:				
Subcontact? Y or	N If yes, where?							Custo	ody S	eal(s)	intact?	Y or 1	N	On Ic	e? Y (r N	1174		Coole	r Temp	:			°C

7210A Corporate Court Frederick, MD 21703 (301) 694-5310 Fax (301) 620-0731

Contract #/Billing Reference		
	of	Pgs

Project:	-11 (SICA			Turnaroui	nd Time	/	Pero	onto	act/	/	/	/	/	/	
	mH				# of Conta	ainers	/	/	/	/	/	/	/	/	/	///
Send Results To:	Gener	PUP II	70010		Container						/					/ /
Address: 570	000	10 lane	14	+ 101	Preservat Used	tive /	/	/	/	/	1	/	/	/	100	40/
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Relinquished By:		Dat	re/Time	Received E	By:			Lab Com	ments:						-4	Temp:

CompuChem a division of Liberty Analytical Corp.

CHAIN OF CUSTODY

501 Madison Ave. Cary, NC 27513

Phone: 919-379-4100 Fax 919-379-4040

Courier Airbill No.

									919-	379-4	100 F	ax 919-	379-40	40			Sampl	ing Co	mplete'	? Y or	N			
	ent/Reporting Information				Proj	ect Inf	ormati	on	MILE				Rec	juested	Analysi				bottle ty				trices	
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Address 5700 Cla		1	Sampling	Location	0 1	ohr	150	n															face water /Sediment	
City 5	State Zip		Turnarou		or co			-1														TB - Trip RI - Rins		
Project Contact	ve moore		Batch QC	or Projec					Samp	le ID?					V	K						WP - Wil		
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Sampler's Name	V 11 V201		Are high	concentrat	tions expe	cted?	Y or N	? If ye	s, whi	ch ID(s)?		60		me	M							mple Info	
DE A SOUTH OF THE PARTY OF THE		Colle	ection]	Numbe	er of Pi	eserve	ed Bott	tles	5	7			t								
CompuChem No				# of	НСІ	NaOH	HN03	H2SO4	МЕОН	Other	SVOC	Pest	Ta	Total	Sele									
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MARKET THE	CX(A SB02-2-6-09C-50)	0940	50	1											X									
	CXA-5802-2-6-07C	7/29	0940	50	1											X								
	CXA-SE04-4-7-09C	7/29	0905	50	1											X								
	CXA-SB08-2-7-09C	7/29	0840	50	1											X								
WALL BOOK	CXCA- SB12 - 2-7-096	7/29	1045	50	1											\times								
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Sample Order Entry					enol samp																			4
	n Good Condition? Y or N			608 samp	oles checke	ed for	pH bet	ween :	5.0-9.0	? Y or	NA													
If no, explain:						-		Sample	Cust	ody		2 00			18-1-	1000								
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Relinquished by:				Date/Ti	me:					Rece	ived by	/:							Date/	Γime:				
Subcontact? Y or	N If yes, where?						Custo	ody S	eal(s)	intact?	Y or 1	N	On Ice	? Y o	r N			Coole	r Temp			°C		

Station ID	CJCA-SB01	CJCA-SB02	CJCA-SB03	CJCA-SB04	CJCA-SB05	CJCA-SB06	CJCA-SB07	CJCA-SB08	CJC	A-SB09	CJCA-SB10	CJCA-SB11	CJCA-SB12
Sample ID	CJCA-SB01-2-7-09C	CJCA-SB02-2-6-09C	CJCA-SB03-2-7-09C	CJCA-SB04-4-7-09C	CJCA-SB05-2-7-09C	CJCA-SB06-2-7-09C	CJCA-SB07-4-7-09C	CJCA-SB08-2-7-09C	CJCA-SB09-2-4-09C	CJCA-SB09D-2-4-09C	CJCA-SB10-2-6-09C	CJCA-SB11-2-7-09C	CJCA-SB12-2-7-09C
Sample Date	07/26/09	07/29/09	07/26/09	07/29/09	07/26/09	07/29/09	07/26/09	07/29/09	07/26/09	07/26/09	07/28/09	07/26/09	07/29/09
Chemical Name													
Total Metals (mg/kg)													
Antimony	1.7 U	0.21 J-	1.9 U	1.6 UJ	1.7 U	1.5 UJ	1.5 U	1.6 UJ	1.6 U	1.7 U	1.6 UJ	1.5 U	1.5 UJ
Arsenic	0.61 J	1.8 U	0.57 J	0.48 J	0.67 J	0.72 J	0.51 J	4.4	1.3 J	0.81 J	0.25 J	1.3 J	1.1 J
Copper	0.28 J	1.4 J	0.55 J	0.48 J	0.77 J	0.47 J	0.51 J	0.72 J	3	6.9	0.64 J	0.55 J	0.58 J
Lead	3.4	4.2	4.3	2.6	3.3	1.9	1.8	4	4.7	4.5	2.5	2.5	2
Zinc	4.2 U	4.6 U	4.8 U	4.1 U	4.1 U	3.7 U	3.8 U	3.9 U	16	49	4 U	3.8 U	3.8 U
Wet Chemistry													
pH (ph)	NA	NA	3.6	NA	NA	4.7	NA						

Notes:
Shading indicates
detections
NA - Not analyzed

- J Analyte present, value may or may not be accurate or precise
- J- Analyte present, value may be biased low, actual value may be higher
- J+ Analyte present, value may be biased high, actual value may be lower
- U The material was analyzed for, but not analyzed for, but not detected UJ - Analyte not detected, quantitation limit may be inaccurate mg/kg - Milligrams per kilogram ph - pH units

Station ID	CJCA-SB13	CJCA-SB14	CJCA-SB15	CJCA-SB16	CJCA-SB18	CJCA-SB19	CJC	A-SB20	CJCA-SB21	CJCA-SB22	CJCA-SB23	CJCA-SB24	CJCA-SB25
Sample ID	CJCA-SB13-2-7-09C	CJCA-SB14-2-7-09C	CJCA-SB15-6-7-09C	CJCA-SB16-2-7-09C	CJCA-SB18-2-5-09C	CJCA-SB19-2-7-09C	CJCA-SB20-2-7-09C	CJCA-SB20D-2-7-09C	CJCA-SB21-2-7-09C	CJCA-SB22-4-7-09C	CJCA-SB23-2-3-09C	CJCA-SB24-2-4-09C	CJCA-SB25-6-7-09C
Sample Date	07/26/09	07/28/09	07/25/09	07/25/09	07/25/09	07/28/09	07/25/09	07/25/09	07/28/09	07/25/09	07/28/09	07/24/09	07/28/09
Chemical Name													
Total Metals (mg/kg)													
Antimony	1.8 U	1.5 UJ	1.6 U	1.5 U	1.7 U	1.6 UJ	1.7 U	1.8 U	1.5 UJ	1.5 U	1.6 UJ	1.6 U	1.9 UJ
Arsenic	1.2 J	0.17 J	3.8 U	1.5 U	1.7 U	0.62 J	1.7 U	2.6 U	0.45 J+	1.5 U	0.79 J+	1.6 U	13.2 J+
Copper	0.51 J	0.27 J	1.3 J	0.77 J	0.55 J	0.35 J	1.7 U	1.9	0.53 J	1.5 U	0.34 J	0.54 J	4.3
Lead	2.6	1.6	6.2	3.1	3.2	2.2	1.5 J	7	2.7	1.5	5	6.8	12.1
Zinc	4.6 U	3.8 U	4.4	3.7 U	2.1 J	3.9 U	4.1 U	4.1 U	3.8 U	3.7 U	3.9 U	6.5	9.6
Wet Chemistry													
pH (ph)	NA	NA	NA	NA	4.4	NA	NA	NA	NA	NA	NA	NA	NA

Notes: Shading indicates

detections
NA - Not analyzed

J - Analyte present, value may or may not be accurate or precise

J- - Analyte present, value may be biased low, actual value may be higher

J+ - Analyte present, value may be biased high, actual value may be lower

U - The material was analyzed for, but not detected UJ - Analyte not detected, quantitation limit may be inaccurate mg/kg - Milligrams per kilogram ph - pH units

Station ID	CJCA-SB26	CJCA-SB27	CJCA-SB28	CJCA-SB29	CJCA-SB30	CJC	A-SB31	CJCA-SB32	CJCA-SB33	CJCA-SB34	CJCA-SB35	CJCA-SB36	CJCA-SB37
Sample ID	CJCA-SB26-4-7-09C	CJCA-SB27-4-7-09C	CJCA-SB28-2-4-09C	CJCA-SB29-2-7-09C	CJCA-SB30-2-7-09C	CJCA-SB31-4-7-09C	CJCA-SB31D-4-7-09C	CJCA-SB32-2-7-09C	CJCA-SB33-4-6-09C	CJCA-SB34-2-4-09C	CJCA-SB35-2-4-09C	CJCA-SB36-4-7-09C	CJCA-SB37-6-7-09C
Sample Date	07/23/09	07/28/09	07/23/09	07/28/09	07/23/09	07/23/09	07/23/09	07/22/09	07/23/09	07/28/09	07/25/09	07/28/09	07/24/09
Chemical Name													
Total Metals (mg/kg)													
Antimony	1.9 UJ	1.9 UJ	1.7 UJ	1.9 UJ	1.8 U	1.9 U	2 U	1.9 U	1.8 U	1.7 UJ	1.7 U	1.9 UJ	1.9 UJ
Arsenic	6.9	8.9 J+	2.6	11	4.5 J-	13.7 J-	14.5 J-	15.8 J-	3.7 J-	20.8 J+	1.7 U	3.3 J+	4.2
Copper	2.7 U	3.6	1.7 U	4.1	3.1	4	4.1	3.9	2.7	3.6	0.99 J	2.2	3.5
Lead	8.6	12.9	7.8	13.7	12.5	14.9	16.4	13.1	12	9.7	13.6	11.2	10.4
Zinc	6.9	8.3	4.3 U	7.6	5	7.8	7.2	8.3	7.4	5.2	4.3 U	6.8	8.9
Wet Chemistry													
pH (ph)	NA	NA	NA	4.2	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes: Shading indicates

detections NA - Not analyzed

- J Analyte present, value may or may not be accurate or precise
- J- Analyte present, value may be biased low, actual value may be higher
- J+ Analyte present, value may be biased high, actual value may be lower
- U The material was analyzed for, but not analyzed for, but not detected UJ - Analyte not detected, quantitation limit may be inaccurate mg/kg - Milligrams per kilogram ph - pH units

Station ID	CJCA-SB38	CJCA-SB39	CJCA-SB40	CJCA-SB41	CJCA-SB42	CJCA-SB43	CJCA-SB44	CJCA	A-SB45	CJCA-SB46	CJCA-SB47	CJCA-SB48	CJCA-SB49
Sample ID	CJCA-SB38-2-4-09C	CJCA-SB39-2-4-09C	CJCA-SB40-4-7-09C	CJCA-SB41-4-6-09C	CJCA-SB42-2-7-09C	CJCA-SB43-6-7-09C	CJCA-SB44-6-7-09C	CJCA-SB45-2-5-09C	CJCA-SB45D-2-5-09C	CJCA-SB46-4-7-09C	CJCA-SB47-6-7-09C	CJCA-SB48-4-6-09C	CJCA-SB49-2-4-09C
Sample Date	07/24/09	07/23/09	07/28/09	07/23/09	07/28/09	07/22/09	07/23/09	07/22/09	07/22/09	07/27/09	07/25/09	07/27/09	07/25/09
Chemical Name													
Total Metals (mg/kg)													
Antimony	1.7 UJ	1.9 UJ	2 UJ	1.7 U	2 UJ	1.9 U	2 U	1.8 U	1.8 U	2 UJ	1.9 U	1.8 UJ	1.6 U
Arsenic	2.6	13.1	7.4 J+	2.6 J-	17.7 J+	5.3 J-	17.8 J-	11.6 J-	2.9 J-	14.4 J+	6.5	5.7 J+	3 U
Copper	1.8 U	2.6 U	4.1	1.3 J	4.2	3.2	4.7	4.4	2.1	2.5	2.5	2.2	1.3 J
Lead	7.5	11.9	14.6	8.2	14.2	12	14.5	16.1	11.1	11	11.9	8.7	7.6
Zinc	4.2 U	6.4	7.9	3.3 J	8.2	7.9	7.9	5	5.3	6.5	7.6	6.9	4.2
Wet Chemistry													
pH (ph)	NA	NA	4.4	NA	NA	NA	NA	NA	NA	NA	NA	4.6	NA

Notes:
Shading indicates
detections
NA - Not analyzed

J - Analyte present, value may or may not be accurate or precise

J- - Analyte present, value may be biased low, actual value may be higher

J+ - Analyte present, value may be biased high, actual value may be lower

U - The material was analyzed for, but not analyzed for, but not detected UJ - Analyte not detected, quantitation limit may be inaccurate mg/kg - Milligrams per kilogram ph - pH units

Station ID	CJCA	A-SB50	CJCA-SB51	CJCA-SB52	CJCA-SB53	CJCA-SB54	CJCA-SB55	CJCA-SB56	CJCA-SB57	CJCA-SB58	CJC/	N-SB59	CJCA-SB60
Sample ID	CJCA-SB50-4-6-09C	CJCA-SB50D-4-6-09C	CJCA-SB51-2-7-09C	CJCA-SB52-4-6-09C	CJCA-SB53-2-7-09C	CJCA-SB54-6-7-09C	CJCA-SB55-4-6-09C	CJCA-SB56-2-7-09C	CJCA-SB57-2-4-09C	CJCA-SB58-2-6-09C	CJCA-SB59-2-4-09C	CJCA-SB59D-2-4-09C	CJCA-SB60-4-6-09C
Sample Date	07/27/09	07/27/09	07/25/09	07/27/09	07/22/09	07/22/09	07/22/09	07/27/09	07/23/09	07/27/09	07/23/09	07/23/09	07/22/09
Chemical Name													
Total Metals (mg/kg)													
Antimony	1.7 UJ	1.7 UJ	1.8 U	1.7 UJ	1.8 U	1.8 U	1.9 U	1.7 UJ	1.7 U	1.8 UJ	1.8 U	1.8 U	1.8 U
Arsenic	6 J+	4.6 J+	2.4	0.98 J+	21.1 J+	14.3 J+	9.2 J+	4.5 J+	2.3 J-	1.9 J+	3.9 J-	3.5 J-	14.8 J+
Copper	1.8	1.7	1.3 J	0.49 J	3.5	3.6	3	1.9	0.75 J	2	3	2.3	4.6
Lead	8.7	8.8	7.5	6.1	11.6	14	12.1	8.5	5.9	9	11.5	10.1	17.3
Zinc	5	5.5	4.4 U	4.2 U	7.7	6.3	5.7	4.4 U	3.3 J	5.3	6.7	6.3	7.7
Wet Chemistry													
pH (ph)	NA	NA	NA	NA	4.3	NA	NA	NA	NA	4.4	NA	NA	NA

Notes: Shading indicates

detections NA - Not analyzed J - Analyte present, value may or may not be accurate or precise

J- - Analyte present, value may be biased low, actual value may be higher

J+ - Analyte present, value may be biased high, actual value may be lower

U - The material was analyzed for, but not analyzed for, but not detected UJ - Analyte not detected, quantitation limit may be inaccurate mg/kg - Milligrams per kilogram ph - pH units

Station ID	CJCA-SB61	CJCA-SB62	CJCA-SB63	CJCA	A-SB64	CJCA-SB65	CJCA-SB66	CJCA-SB67	CJCA-SB68	CJCA-SB69	CJC	A-SB70	CJCA-SB71
Sample ID	CJCA-SB61-2-4-09C	CJCA-SB62-2-4-09C	CJCA-SB63-2-4-09C	CJCA-SB64-4-7-09C	CJCA-SB64D-4-7-09C	CJCA-SB65-2-4-09C	CJCA-SB66-4-6-09C	CJCA-SB67-6-7-09C	CJCA-SB68-4-6-09C	CJCA-SB69-6-7-09C	CJCA-SB70-4-6-09C	CJCA-SB70D-4-6-09C	CJCA-SB71-6-7-09C
Sample Date	07/22/09	07/22/09	07/23/09	07/27/09	07/27/09	07/22/09	07/22/09	07/22/09	07/22/09	07/21/09	07/22/09	07/22/09	07/21/09
Chemical Name													
Total Metals (mg/kg)													
Antimony	1.6 U	1.8 U	1.6 U	1.9 UJ	2 UJ	1.7 U	2 U	1.9 U	1.8 U	2.1 U	2 U	1.9 U	3.7 U
Arsenic	1.1 J+	4.7 J+	2.6 J-	12 J+	15 J+	5.6 J-	12.3 J-	11.6 J-	11.6 J+	10.1 J-	14.2 J+	4.7 J+	46.5 J-
Copper	1 J	3.2	0.65 J	4.6	4.2	0.84 J	2.9	4.5	3.7	4	4	3.7	6.8
Lead	4.9	10.8	5	14.4	13.3	7.2	9.7	15.6	13.7	15.4	15.4	14.4	17.6
Zinc	3.9 U	6.6	2 J	8.7	9	3.2 J	8.7	8.2	7.4	7.9	8	8	9.7
Wet Chemistry													
pH (ph)	NA	NA	NA	NA	NA	NA	NA	4.6	NA	NA	NA	NA	NA

Notes: Shading indicates

detections NA - Not analyzed

- J Analyte present, value may or may not be accurate or precise
- J- Analyte present, value may be biased low, actual value may be higher
- J+ Analyte present, value may be biased high, actual value may be lower
- U The material was analyzed for, but not analyzed for, but not detected UJ - Analyte not detected, quantitation limit may be inaccurate mg/kg - Milligrams per kilogram ph - pH units

Station ID	CJCA-SB72	CJCA-SB73	CJCA-SB74	CJCA-SB75	CJCA-SB76	CJCA-SB77	CJCA-SB78
Sample ID	CJCA-SB72-4-6-09C	CJCA-SB73-4-6-09C	CJCA-SB74-2-7-09C	CJCA-SB75-4-6-09C	CJCA-SB76-4-6-09C	CJCA-SB77-2-4-09C	CJCA-SB78-4-6-09C
Sample Date	07/21/09	07/21/09	07/21/09	07/21/09	07/21/09	07/21/09	07/21/09
Chemical Name							
Total Metals (mg/kg)							
Antimony	1.9 U	1.9 U	1.7 U	1.9 U	1.8 U	1.5 U	3.5 U
Arsenic	21.3 J-	14.1 J-	1.1 J-	7 J-	4.9 J-	0.92 J-	24.8 J-
Copper	5.4	4.2	0.66 J	4.1	3.5	0.5 J	6.3
Lead	13.8	14	4	14.2	10.4	4.1	14.8
Zinc	8.4	8.9	4.2 U	8.1	5.4	3.8 U	10.2
Wet Chemistry							
pH (ph)	NA	4.6	NA	NA	NA	NA	NA

Notes: Shading indicates

detections

NA - Not analyzed

J - Analyte present, value
may or may not be
accurate or precise

J- - Analyte present, value may be biased low, actual value may be higher

J+ - Analyte present, value may be biased high, actual value may be lower

U - The material was analyzed for, but not analyzed for, but not detected UJ - Analyte not detected, quantitation limit may be inaccurate mg/kg - Milligrams per kilogram ph - pH units

Table 5-9

Former Range Area Groundwater Analyticl Results
Camp Johnson Construction Area
Focused PA/SI Report
MCB CamLej
North Carolina

Station ID	CJCA-TW01	CJCA-TW02	CJCA-TW03	CJCA-TW04	CJCA-TW05	CJCA-TW06	CJCA-TW08	CJCA-TW09	CJCA-TW10	CJCA-TW11	CJCA-TW12	CJCA-TW13	CJCA-TW14	CJCA	A-TW15	CJCA-TW16	CJCA-TW17	CJCA-TW18	CJCA-TW19	CJCA-TW20
Sample ID	CJCA-TW01-09C	CJCA-TW02-09C	CJCA-TW03-09C	CJCA-TW04-09C	CJCA-TW05-09C	CJCA-TW06-09C	CJCA-TW08-09C	CJCA-TW09-09C	CJCA-TW10-09C	CJCA-TW11-09C	CJCA-TW12-09C	CJCA-TW13-09C	CJCA-TW14-09C	CJCA-TW15-09C	CJCA-TW15D-09C	CJCA-TW16-09C	CJCA-TW17-09C	CJCA-TW18-09C	CJCA-TW19-09C	CJCA-TW20-09C
Sample Date	07/28/09	07/28/09	07/28/09	07/29/09	07/28/09	07/28/09	07/27/09	07/26/09	07/27/09	07/27/09	07/26/09	07/26/09	07/26/09	07/26/09	07/26/09	07/25/09	07/24/09	07/26/09	07/26/09	07/26/09
Chemical Name																				
Total Metals (μg/l)																				
Antimony	100 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Arsenic	20 U	20 U	20 U	3 J	20 U	20 U	2.2 J	20 U	2.6 J	20 U	20 U	20 U	2.9 J	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Copper	100 U	20 U	7.4 J	20 U	20 U	3.2 J	20 U	4.4 J	20 U	20 U	20 U	3.9 J	20 U	20 U	3.5 J	20 U	10.4 J	20 U	20 U	20 U
Lead	19.1 J	20 U	14.1 J	20 U	20 U	11.5 J	20 U	20 U	20 U											
Zinc	250 U	18 J	18.5 J	4.5 J	18.2 J	8.4 J	6.9 J	14.3 J	10.4 J	18.6 J	6.5 J	17.4 J	36.8 J	6.9 J	14.2 J	32 J	160	112	7.5 J	81.5
Dissolved Metals (µg/l)																				
Antimony, Dissolved	20 U	NA	20 U	NA	NA	20 U	NA	NA	NA											
Arsenic, Dissolved	20 U	NA	20 U	NA	NA	20 U	NA	NA	NA											
Copper, Dissolved	20 U	NA	20 U	NA	NA	20 U	NA	NA	NA											
Lead, Dissolved	2 J	NA	20 U	NA	NA	20 U	NA	NA	NA											
Zinc, Dissolved	50 U	NA	10.1 J	NA	NA	82.3	NA	NA	NA											

Shading indicates detections

NA - Not analyzed J - Analyte present, value may or may not be accurate or precise

U - The material was analyzed for, but not detected

μg/l - Micrograms per liter

Table 5-9

Former Range Area Groundwater Analyticl Results
Camp Johnson Construction Area
Focused PA/SI Report
MCB CamLej
North Carolina

Station ID	CJCA-TW21	CJCA-TW22	CJCA-TW23	CJCA	A-TW24	CJCA-TW25	CJCA-TW26	CJCA-TW27	CJCA-TW28	CJCA-TW29	CJCA-TW30	CJCA-TW31	CJCA-TW32	CJCA-TW33	CJCA-TW34	CJCA	A-TW35	CJCA-TW36	CJCA-TW37	CJCA-TW38
Sample ID	CJCA-TW21-09C	CJCA-TW22-09C	CJCA-TW23-09C	CJCA-TW24-09C	CJCA-TW24D-09C	CJCA-TW25-09C	CJCA-TW26-09C	CJCA-TW27-09C	CJCA-TW28-09C	CJCA-TW29-09C	CJCA-TW30-09C	CJCA-TW31-09C	CJCA-TW32-09C	CJCA-TW33-09C	CJCA-TW34-09C	CJCA-TW35-09C	CJCA-TW35D-09C	CJCA-TW36-09C	CJCA-TW37-09C	CJCA-TW38-09C
Sample Date	07/26/09	07/24/09	07/23/09	07/27/09	07/27/09	07/27/09	07/27/09	07/23/09	07/23/09	07/25/09	07/25/09	07/23/09	07/25/09	07/25/09	07/25/09	07/22/09	07/22/09	07/22/09	07/22/09	07/23/09
Chemical Name																				
Total Metals (µg/l)																				
Antimony	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U				
Arsenic	3.1 J	20 U	20 U	20 U	20 U	20 U	20 U	9.4 J	2.9 J	20 U	6.1 J	4 J	2.6 J	3.5 J	20 U	20 U	20 U	5.5 J	20 U	20 U
Copper	20 U	20 U	2.7 J	20 U	20 U	20 U	20 U	5.5 J	10 J	20 U	20 U	4.2 J	20 U	20 U	6.6 J	20 U	20 U	20 U	2.7 J	20 U
Lead	20 U	20 U	2 J	10.3 J	2.3 J	20 U	20 U	6.6 J	3.6 J	2.2 J	4.5 J	20 U	20 U	2 J	20 U	2.9 J				
Zinc	21.2 J	5.6 J	69.8	11.6 J	14.8 J	14.3 J	11.9 J	63.5	56.7	15.1 J	16.9 J	91.6	53.8	77.6	19.7 J	8.3 J	10.4 J	4.3 J	42.6 J	30.9 J
Dissolved Metals (µg/l)																				
Antimony, Dissolved	NA	20 U	20 U	NA	NA	NA	NA	20 U	20 U	NA	NA	20 U	NA	NA	NA	20 U	20 U	20 U	20 U	20 U
Arsenic, Dissolved	NA	20 U	20 U	NA	NA	NA	NA	20 U	20 U	NA	NA	20 U	NA	NA	NA	20 U	20 U	4.9 J	20 U	20 U
Copper, Dissolved	NA	20 U	20 U	NA	NA	NA	NA	20 U	3.6 J	NA	NA	20 U	NA	NA	NA	20 U	20 U	20 U	3.1 J	20 U
Lead, Dissolved	NA	2 J	20 U	NA	NA	NA	NA	20 U	20 U	NA	NA	20 U	NA	NA	NA	20 U	20 U	20 U	20 U	20 U
Zinc, Dissolved	NA	4.3 J	32.4 J	NA	NA	NA	NA	50 U	39.6 J	NA	NA	61.7	NA	NA	NA	8 J	8.4 J	50 U	42.5 J	27 J

Shading indicates detections

NA - Not analyzed J - Analyte present, value may or may not be accurate or precise

U - The material was analyzed for, but not detected

μg/l - Micrograms per liter

Station ID	IR15-SS01	IR15-SS02	IR1:	5-SS03	IR15-SS04	IR15-SS05	IR15-SS06	IR15-SS07	IR15-SS08	IR15-SS09	IR15-SS10
Sample ID	IR15-SS01-00-01-09C	IR15-SS02-00-01-09C	IR15-SS03-00-01-09C	IR15-SS03D-00-01-09C	IR15-SS04-00-01-09C	IR15-SS05-00-01-09C	IR15-SS06-00-01-09C	IR15-SS07-00-01-09C	IR15-SS08-00-01-09C	IR15-SS09-00-01-09C	IR15-SS10-00-01-09C
Sample Date	07/10/09	07/10/09	07/10/09	07/10/09	07/10/09	07/10/09	07/10/09	07/10/09	07/10/09	07/10/09	07/10/09
Chemical Name											
Volatile Organic Compounds (µg/kg)											
1,1,1-Trichloroethane	5.8 UJ	4.6 R	4.2 UJ	5.4 R	5.9 UJ	NA	5.4 R	5.3 U	7 UJ	5.5 UJ	4.7 UJ
1,1,2,2-Tetrachloroethane	5.8 UJ	4.6 R	4.2 UJ	5.4 R	5.9 UJ	NA NA	5.4 R	5.3 UJ	7 UJ	5.5 UJ	4.7 UJ
1,1,2-Trichloro-1,2,2-trifluoroethane(Freon-113) 1,1,2-Trichloroethane	5.8 UJ 5.8 UJ	4.6 R 4.6 R	4.2 UJ 4.2 UJ	5.4 R 5.4 R	5.9 UJ 5.9 UJ	NA NA	5.4 R 5.4 R	5.3 U 5.3 UJ	7 UJ 7 UJ	5.5 UJ 5.5 UJ	4.7 UJ 4.7 UJ
1,1-Dichloroethane	5.8 UJ	4.6 R	4.2 UJ	5.4 R	5.9 UJ	NA NA	5.4 R	5.3 U	7 UJ	5.5 UJ	4.7 UJ
1,1-Dichloroethene	5.8 UJ	4.6 R	4.2 UJ	5.4 R	5.9 UJ	NA	5.4 R	5.3 U	7 UJ	5.5 UJ	4.7 UJ
1,2,4-Trichlorobenzene	5.8 UJ	4.6 R	4.2 UJ	5.4 R	5.9 UJ	NA	5.4 R	5.3 UJ	7 UJ	5.5 UJ	4.7 UJ
1,2-Dibromo-3-chloropropane 1,2-Dibromoethane	5.8 UJ 5.8 UJ	4.6 R 4.6 R	4.2 UJ 4.2 UJ	5.4 R 5.4 R	5.9 UJ 5.9 UJ	NA NA	5.4 R 5.4 R	5.3 UJ 5.3 U	7 UJ 7 UJ	5.5 UJ 5.5 UJ	4.7 UJ 4.7 UJ
1,2-Dichlorobenzene	5.8 UJ	4.6 R	4.2 UJ	5.4 R	5.9 UJ	NA NA	5.4 R	5.3 UJ	7 UJ	5.5 UJ	4.7 UJ
1,2-Dichloroethane	5.8 UJ	4.6 R	4.2 UJ	5.4 R	5.9 UJ	NA	5.4 R	5.3 UJ	7 UJ	5.5 UJ	4.7 UJ
1,2-Dichloropropane	5.8 UJ	4.6 R	4.2 UJ	5.4 R	5.9 UJ	NA	5.4 R	5.3 U	7 UJ	5.5 UJ	4.7 UJ
1,3-Dichlorobenzene 1,4-Dichlorobenzene	5.8 UJ 5.8 UJ	4.6 R 4.6 R	4.2 UJ 4.2 UJ	5.4 R 5.4 R	5.9 UJ 5.9 UJ	NA NA	5.4 R 5.4 R	5.3 UJ 5.3 UJ	7 UJ 7 UJ	5.5 UJ 5.5 UJ	4.7 UJ 4.7 UJ
2-Butanone	22 J	9.2 R	4.2 UJ 8.5 UJ	11 R	4.4 J	NA NA	11 R	4.5 J	40 J	11 UJ	9.5 UJ
2-Hexanone	12 UJ	9.2 R	8.5 UJ	11 R	12 UJ	NA NA	11 R	11 UJ	14 UJ	11 UJ	9.5 UJ
4-Methyl-2-pentanone	12 UJ	9.2 R	8.5 UJ	11 R	12 UJ	NA	11 R	11 UJ	14 UJ	11 UJ	9.5 UJ
Acetone	240 J	9.2 R	14 J	11 R	52 J	NA NA	77 J	160 J	1,700 J	11 UJ	150 J
Benzene Bromodichloromethane	5.8 UJ 5.8 UJ	4.6 R 4.6 R	4.2 UJ 4.2 UJ	5.4 R 5.4 R	5.9 UJ 5.9 UJ	NA NA	5.4 R 5.4 R	5.3 U 5.3 U	7 UJ 7 UJ	5.5 UJ 5.5 UJ	4.7 UJ 4.7 UJ
Bromoform	5.8 UJ	4.6 R	4.2 UJ	5.4 R	5.9 UJ	NA NA	5.4 R	5.3 UJ	7 UJ	5.5 UJ	4.7 UJ
Bromomethane	12 UJ	9.2 R	8.5 UJ	11 R	12 UJ	NA	11 R	11 R	14 R	11 UJ	9.5 UJ
Carbon disulfide	5.8 UJ	4.6 R	4.2 UJ	5.4 R	5.9 UJ	NA NA	5.4 R	5.3 U	7 UJ	5.5 UJ	4.7 UJ
Carbon tetrachloride Chlorobenzene	5.8 UJ 5.8 UJ	4.6 R 4.6 R	4.2 UJ 4.2 UJ	5.4 R 5.4 R	5.9 UJ 5.9 UJ	NA NA	5.4 R 5.4 R	5.3 U 5.3 UJ	7 UJ 7 UJ	5.5 UJ 5.5 UJ	4.7 UJ 4.7 UJ
Chloroethane	12 UJ	9.2 R	8.5 UJ	11 R	12 UJ	NA NA	11 R	11 U	14 UJ	11 UJ	9.5 UJ
Chloroform	5.2 J	4.6 R	4.2 UJ	5.4 R	5.9 UJ	NA	5.4 R	5.3 U	7 UJ	5.5 UJ	4.7 UJ
Chloromethane	12 UJ	9.2 R	8.5 UJ	11 R	12 UJ	NA NA	11 R	11 U	14 UJ	11 UJ	9.5 UJ
cis-1,2-Dichloroethene cis-1,3-Dichloropropene	5.8 UJ 5.8 UJ	4.6 R 4.6 R	4.2 UJ 4.2 UJ	5.4 R 5.4 R	5.9 UJ 5.9 UJ	NA NA	5.4 R 5.4 R	5.3 U 5.3 U	7 UJ 7 UJ	5.5 UJ 5.5 UJ	4.7 UJ 4.7 UJ
Cyclohexane	5.8 UJ	4.6 R	4.2 UJ	5.4 R	5.9 UJ	NA NA	5.4 R	5.3 U	7 UJ	5.5 UJ	4.7 UJ
Dibromochloromethane	5.8 UJ	4.6 R	4.2 UJ	5.4 R	5.9 UJ	NA	5.4 R	5.3 U	7 UJ	5.5 UJ	4.7 UJ
Dichlorodifluoromethane (Freon-12)	5.8 UJ	4.6 R	4.2 UJ	5.4 R	5.9 UJ	NA	5.4 R	5.3 UJ	7 UJ	5.5 UJ	4.7 UJ
Ethylbenzene	5.8 UJ 5.8 UJ	4.6 R 4.6 R	4.2 UJ 4.2 UJ	5.4 R 5.4 R	5.9 UJ 5.9 UJ	NA NA	5.4 R 5.4 R	5.3 U 5.3 U	7 UJ 7 UJ	5.5 UJ 5.5 UJ	4.7 UJ 4.7 UJ
Isopropylbenzene Methyl acetate	5.8 UJ	4.6 R	4.2 UJ	5.4 R	4.5 J	NA NA	14 J	10 J	2,100	5.5 UJ	24 J
Methylcyclohexane	5.8 UJ	4.6 R	4.2 UJ	5.4 R	5.9 UJ	NA	5.4 R	5.3 U	7 UJ	5.5 UJ	4.7 UJ
Methylene chloride	12 UJ	9.2 R	8.5 UJ	11 R	12 UJ	NA	11 R	11 U	14 UJ	11 UJ	9.5 UJ
Methyl-tert-butyl ether (MTBE)	5.8 UJ	4.6 R	4.2 UJ	5.4 R	5.9 UJ	NA NA	5.4 R	5.3 UJ	7 UJ	5.5 UJ	4.7 UJ
Styrene Tetrachloroethene	5.8 UJ 5.8 UJ	4.6 R 4.6 R	4.2 UJ 4.2 UJ	5.4 R 5.4 R	5.9 UJ 5.9 UJ	NA NA	5.4 R 5.4 R	5.3 U 5.3 U	7 UJ 7 UJ	5.5 UJ 5.5 UJ	4.7 UJ 4.7 UJ
Toluene	5.8 UJ	4.6 R	4.2 UJ	5.4 R	5.9 UJ	NA NA	5.4 R	5.3 U	10 J	5.5 UJ	4.7 UJ
trans-1,2-Dichloroethene	5.8 UJ	4.6 R	4.2 UJ	5.4 R	5.9 UJ	NA	5.4 R	5.3 U	7 UJ	5.5 UJ	4.7 UJ
trans-1,3-Dichloropropene	5.8 UJ	4.6 R	4.2 UJ	5.4 R	5.9 UJ	NA NA	5.4 R	5.3 UJ	7 UJ	5.5 UJ	4.7 UJ
Trichloroethene Trichlorofluoromethane(Freon-11)	5.8 UJ 5.8 UJ	4.6 R 4.6 R	4.2 UJ 4.2 UJ	5.4 R 5.4 R	5.9 UJ 5.9 UJ	NA NA	5.4 R 5.4 R	5.3 U 5.3 U	7 UJ 7 UJ	5.5 UJ 5.5 UJ	4.7 UJ 4.7 UJ
Vinyl chloride	12 UJ	9.2 R	8.5 UJ	11 R	12 UJ	NA NA	11 R	11 U	14 UJ	11 UJ	9.5 UJ
Xylene, total	5.8 UJ	4.6 R	4.2 UJ	5.4 R	5.9 UJ	NA	5.4 R	5.3 U	7 UJ	5.5 UJ	4.7 UJ
Semivolatile Organic Compounds (µg/kg)	100 11	190 11	100 111	100 11	190 11	100 11	170 11	190 11	210 11	100 11	190 11
1,1-Biphenyl 2,2'-Oxybis(1-chloropropane)	190 U 190 U	180 U 180 U	190 UJ 190 UJ	190 U 190 U	180 U 180 U	180 U 180 U	170 U 170 U	180 U 180 U	210 U 210 U	190 U 190 U	180 U 180 U
2,4,5-Trichlorophenol	190 U	180 U	190 UJ	190 U	180 U	180 U	170 U	180 U	210 U	190 U	180 U
2,4-Dichlorophenol	190 U	180 U	190 UJ	190 U	180 U	180 U	170 U	180 U	210 U	190 U	180 U
2,4-Dimethylphenol 2,4-Dinitrophenol	190 U 190 U	180 U 180 U	190 UJ 190 UJ	190 U 190 U	180 U 180 U	180 U 180 U	170 U 170 U	180 U 180 U	210 U 210 U	190 U 190 U	180 U 180 U
2,4-Dinitrophenoi 2,4-Dinitrotoluene	190 U	180 U	190 UJ	190 U	180 U	180 U	170 U	180 U	210 U	190 U	180 U
2,6-Dinitrotoluene	190 U	180 U	190 UJ	190 U	180 U	180 U	170 U	180 U	210 U	190 U	180 U
2-Chloronaphthalene	190 U	180 UJ	190 UJ	190 U	180 U	180 U	170 U	180 U	210 U	190 U	180 U
2-Chlorophenol	190 U	180 U	190 UJ	190 U	180 U	180 U	170 U	180 U	210 U	190 U	180 U
2-Methylnaphthalene 2-Methylphenol	190 U 190 U	180 U 180 U	190 UJ 190 UJ	190 U 190 U	180 U 180 U	180 U 180 U	170 U 170 U	180 U 180 U	210 U 210 U	190 U 190 U	180 U 180 U
2-Nitroaniline	190 U	180 U	190 UJ	190 U	180 U	180 U	170 U	180 U	210 U	190 U	180 U
2-Nitrophenol	190 U	180 U	190 UJ	190 U	180 U	180 U	170 U	180 U	210 U	190 U	180 U
3,3'-Dichlorobenzidine	190 UJ	180 UJ	190 UJ	190 UJ	180 UJ	180 UJ	170 UJ	180 UJ	210 UJ	190 U	180 U
3-Nitroaniline 4,6-Dinitro-2-methylphenol	190 U 190 U	180 U 180 U	190 UJ 190 UJ	190 U 190 U	180 U 180 U	180 U 180 U	170 U 170 U	180 U 180 U	210 U 210 U	190 U 190 U	180 U 180 U
4-Bromophenyl-phenylether	190 U	180 U	190 UJ	190 U	180 U	180 U	170 U	180 U	210 U	190 U	180 U
4-Chloro-3-methylphenol	190 U	180 U	190 UJ	190 U	180 U	180 U	170 U	180 U	210 U	190 U	180 U
4-Chloroaniline	190 U	180 U	190 UJ	190 U	180 U	180 U	170 U	180 U	210 U	190 U	180 U
4-Chlorophenyl-phenylether	190 U	180 U	190 UJ	190 U	180 U	180 U	170 U	180 U	210 U	190 U	180 U
4-Methylphenol 4-Nitroaniline	190 U 190 U	180 U 180 U	190 UJ 190 UJ	190 U 190 U	180 U 180 U	180 U 180 U	170 U 170 U	180 U 180 U	210 U 210 U	190 U 190 U	180 U 180 U
4-Nitrophenol	190 U	180 U	190 UJ	190 U	180 U	180 U	170 U	180 U	210 U	190 U	180 U
Acenaphthene	190 U	180 U	190 UJ	190 U	180 U	180 U	170 U	180 U	210 U	190 U	180 U
Acenaphthylene	190 U	180 U	190 UJ	190 U	180 U	180 U	170 U	180 U	210 U	190 U	180 U
Actophenone	190 U	180 U	190 UJ	190 U	180 U	180 U	170 U	180 U	210 U	190 U	180 U
Anthracene Atrazine	190 U 190 U	180 U 180 U	190 UJ 190 UJ	190 U 190 U	180 U 180 U	180 U 180 U	170 U 170 U	180 U 180 U	210 U 210 U	190 U 190 U	180 U 180 U
Atrazine Benzaldehyde	190 U	180 U	190 UJ	190 U	180 U	180 U	170 U	180 U	210 U	190 U	180 U
Benzo(a)anthracene	39 U	36 U	38 UJ	38 U	37 U	36 U	35 U	36 U	42 U	37 U	36 U

CTO-11 Camp Lejeune - Site 15 Validated Surface Soil Raw Analytical Results July 2009

Station ID Sample ID Sample Date	IR15-SS01 IR15-SS01-00-01-09C	IR15-SS02	IR1	5-SS03	IR15-SS04	IR15-SS05	IR15-SS06	IR15-SS07	IR15-SS08	IR15-SS09	
			ID4E CC00 00 04 00C	ID45 0000D 00 04 000							IR15-SS10
. IOU II DE LIAIR	07/10/09	IR15-SS02-00-01-09C 07/10/09	IR15-SS03-00-01-09C 07/10/09	IR15-SS03D-00-01-09C 07/10/09	IR15-SS04-00-01-09C 07/10/09	IR15-SS05-00-01-09C 07/10/09	IR15-SS06-00-01-09C 07/10/09	IR15-SS07-00-01-09C 07/10/09	IR15-SS08-00-01-09C 07/10/09	IR15-SS09-00-01-09C 07/10/09	IR15-SS10-00-01-09C 07/10/09
Chemical Name	07/10/03	01/10/09	07/10/03	01/10/03	01/10/03	07/10/09	01/10/09	07/10/09	01/10/03	01/10/03	01/10/03
Benzo(a)pyrene	39 U	36 U	38 UJ	38 U	37 U	36 U	35 U	36 U	42 U	37 U	36 U
Benzo(b)fluoranthene	39 U	36 U	38 UJ	38 U	37 U	36 U	35 U	36 U	42 U	37 U	36 U
Benzo(g,h,i)perylene	190 U	180 UJ 180 UJ	190 UJ 190 UJ	95 J 190 U	180 U 180 U	180 U 180 U	170 U 170 U	180 U 180 U	210 U 210 U	190 U 190 U	180 U 180 U
Benzo(k)fluoranthene bis(2-Chloroethoxy)methane	190 U 190 U	180 UJ	190 UJ	190 U	180 U	180 U	170 U	180 U	210 U	190 U	180 U
bis(2-Chloroethyl)ether	190 U	180 U	190 UJ	190 U	180 U	180 U	170 U	180 U	210 U	190 U	180 U
bis(2-Ethylhexyl)phthalate	180 J	180 U	190 UJ	190 U	180 U	180 U	110 J	88 J	210 U	190 U	180 U
Butylbenzylphthalate	190 J	180 U	190 UJ	190 U	180 U	180 U	170 U	180 U	210 U	190 U	180 U
Caprolactam Carbazole	190 U 190 U	180 U 180 U	190 UJ 190 UJ	190 U 190 U	180 U 180 U	180 R 180 U	170 U 170 U	180 U 180 U	210 U 210 U	190 U 190 U	180 U 180 U
Chrysene	190 U	180 U	190 UJ	190 U	180 U	180 U	170 U	180 U	210 U	190 U	180 U
Dibenz(a,h)anthracene	39 U	36 U	38 UJ	64 J	37 U	36 U	35 U	36 U	42 U	37 U	36 U
Dibenzofuran	190 U	180 U	190 UJ	190 U	180 U	180 U	170 U	180 U	210 U	190 U	180 U
Diethylphthalate Dimethyl phthalate	190 U 190 U	180 U 180 U	190 UJ 190 UJ	190 U 190 U	180 U 180 U	180 U 180 U	170 U 170 U	180 U 180 U	210 U 210 U	190 U 190 U	180 U 180 U
Di-n-butylphthalate	190 U	180 U	190 UJ	190 U	180 U	180 U	170 U	180 U	210 U	120 J	150 J
Di-n-octylphthalate	190 UJ	180 UJ	190 UJ	190 UJ	180 UJ	180 UJ	170 UJ	180 UJ	210 UJ	190 U	180 U
Fluoranthene	190 U	180 U	190 UJ	190 U	180 U	180 U	170 U	180 U	210 U	190 U	180 U
Fluorene Hexachlorobenzene	190 U 190 U	180 U 180 U	190 UJ 190 UJ	190 U 190 U	180 U 180 U	180 U 180 U	170 U 170 U	180 U 180 U	210 U 210 U	190 U 190 U	180 U 180 U
Hexachlorobutadiene Hexachlorobutadiene	190 U	180 U	190 UJ	190 U	180 U	180 U	170 U	180 U	210 U	190 U	180 U
Hexachlorocyclopentadiene	190 U	180 U	190 UJ	190 U	180 U	180 U	170 U	180 U	210 U	190 U	180 U
Hexachloroethane	190 U	180 U	190 UJ	190 U	180 U	180 U	170 U	180 U	210 U	190 U	180 U
Indeno(1,2,3-cd)pyrene	39 U	36 U	38 UJ	52 J	37 U	36 U	35 U	36 U	42 U	37 U	36 U
Isophorone Naphthalene	39 U 190 U	36 U 180 U	38 UJ 190 UJ	38 U 190 U	37 U 180 U	36 U 180 U	35 U 170 U	36 U 180 U	42 U 210 U	37 U 190 U	36 U 180 U
n-Nitroso-di-n-propylamine	39 U	36 U	38 UJ	38 U	37 U	36 U	35 U	36 U	42 U	37 U	36 U
n-Nitrosodiphenylamine	190 U	180 UJ	190 UJ	190 U	180 U	180 U	170 U	180 U	210 U	190 U	180 U
Nitrobenzene	190 U	180 U 180 U	190 UJ 190 UJ	190 U 190 U	180 U 180 U	180 U	170 U 170 U	180 U 180 U	210 U 210 U	190 U 190 U	180 U 180 U
Pentachlorophenol Phenanthrene	190 U 190 U	180 U 180 U	190 UJ 190 UJ	190 U 190 U	180 U 180 U	180 U 180 U	170 U 170 U	180 U 180 U	210 U 210 U	190 U 190 U	180 U 180 U
Phenol	190 U	180 U	190 UJ	190 U	180 U	180 U	170 U	180 U	210 U	190 U	180 U
Pyrene	190 U	180 U	190 UJ	190 U	180 U	180 U	170 U	180 U	210 U	190 UJ	180 U
Description of the second of t											
Pesticide/Polychlorinated Biphenyls (µg/kg) 4,4'-DDD	7.5 J	1.8 U	1.9 U	1.9 U	1.9 U	1.8 U	1.7 U	1.8 U	2.1 U	2.7	3.7
4,4'-DDE	25 J	1.8 U	0.75 J	0.88 J	1.9 U	1.8 U	0.56 J	1.0 J	2.1 J	21 J	22 J
4,4'-DDT	16 J	1.8 UJ	1 J	1.3 J	1.9 UJ	1.8 UJ	0.39 J	0.62 J	0.99 J	1.8 UJ	24 J
Aldrin	1.9 U	1.8 U	1.9 U	1.9 U	1.9 U	1.8 U	1.7 U	1.8 U	2.1 U	1.8 UJ	1.8 UJ
alpha-BHC alpha-Chlordane	1.9 U 7.4 J	1.8 U 1.8 U	1.9 U 1.9 U	1.9 U 1.9 U	1.9 U 1.9 U	1.8 U 1.8 U	1.7 U 1.7 U	1.8 U 1.8 U	2.1 U 2.1 U	1.8 UJ 1.1 J	1.8 UJ 1 J
Aroclor-1016	19 U	1.8 U	1.9 U	1.9 U	18 U	1.8 U	1.7 U	1.8 U	21 U	1.1 J	17 U
Aroclor-1221	19 U	18 U	19 U	19 U	18 U	18 U	17 U	18 U	21 U	17 U	17 U
Aroclor-1232	19 U	18 U	19 U	19 U	18 U	18 U	17 U	18 U	21 U	17 U	17 U
Aroclor-1242 Aroclor-1248	19 U 19 U	18 U 18 U	19 U 19 U	19 U 19 U	18 U 18 U	18 U 18 U	17 U 17 U	18 U	21 U 21 U	17 U 17 U	17 U 17 U
Aroclor-1254	360 J	18 U	19 U	19 U	18 U	18 U	17 U	18 U 18 U	21 U	17 U	17 U
Aroclor-1260	19 U	18 U	19 U	19 U	18 U	18 U	17 U	18 U	21 U	17 U	17 U
beta-BHC	1.9 U	1.8 U	1.9 U	1.9 U	1.9 U	1.8 U	1.7 U	1.8 U	2.1 U	1.8 UJ	1.8 UJ
delta-BHC	1.9 U	1.8 U	1.9 U	1.9 U	1.9 U	1.8 U	1.7 U	1.8 U	2.1 U	1.8 UJ	1.8 UJ
Dieldrin Endosulfan I	1.9 U 1.9 U	1.8 U 1.8 U	1.9 U 1.9 U	1.9 U 1.9 U	1.9 U 1.9 U	1.8 U 1.8 U	1.7 U 1.7 U	1.8 U 1.8 U	2.1 U 2.1 U	1.7 J 1.8 UJ	0.91 J 1.8 UJ
Endosulfan II	1.9 U	1.8 U	1.9 U	1.9 U	1.9 U	1.8 U	1.7 U	1.8 U	2.1 U	1.8 UJ	1.8 UJ
Endosulfan sulfate	1.9 U	1.8 U	1.9 U	1.9 U	1.9 U	1.8 U	1.7 U	1.8 U	2.1 U	1.8 UJ	1.8 UJ
Endrin	1.9 U	1.8 U	1.9 U	1.9 U	1.9 U	1.8 U	1.7 U	1.8 U	2.1 U	1.8 UJ	1.8 UJ
Endrin aldehyde Endrin ketone	1.9 U 1.9 UJ	1.8 U 1.8 UJ	1.9 U 1.9 UJ	1.9 U 1.9 UJ	1.9 U 1.9 UJ	1.8 U 1.8 UJ	1.7 U 1.7 UJ	1.8 U 1.8 UJ	2.1 U 2.1 UJ	1.8 UJ 1.8 UJ	1.8 UJ 1.8 UJ
gamma-BHC (Lindane)	1.9 U	1.8 U	1.9 U	1.9 U	1.9 U	1.8 U	1.7 U	1.8 U	2.1 U	1.8 UJ	1.8 UJ
gamma-Chlordane	8.6 J	1.8 U	1.9 U	1.9 U	1.9 U	1.8 U	1.7 U	1.8 U	2.1 U	0.58 J	0.71 J
Heptachlor	1.9 U	1.8 U	1.9 U	1.9 U	1.9 U	1.8 U	1.7 U	1.8 U	2.1 U	1.8 UJ	1.8 UJ
Heptachlor epoxide Methoxychlor	1.9 U 1.9 UJ	1.8 U 1.8 UJ	1.9 U 1.9 UJ	1.9 U 1.9 UJ	1.9 U 1.9 UJ	1.8 U 1.8 UJ	1.7 U 1.7 UJ	1.8 U 1.8 UJ	2.1 U 2.1 UJ	1.8 UJ 1.8 UJ	1.8 UJ 1.8 UJ
Toxaphene	39 U	36 U	38 U	38 U	37 U	36 U	35 U	36 U	42 U	37 UJ	36 UJ
·											
Total Metals (mg/kg)	4.000	F 700	40.500	44.400	2012	4.50	4.050	4.000 1	4.040	7 100	0.040
Aluminum Antimony	4,280 0.64 J-	5,720 1.5 UJ	12,500 1.6 UJ	11,400 1.6 UJ	3,910 J+ 1.6 U	1,150 J+ 1.6 U	1,250 J+ 0.27 J	1,380 J+ 0.27 J	4,640 J+ 0.34 J	7,490 1.5 UJ	6,340 1.5 UJ
Arsenic	1.7	0.76 J	4.1	4.7	1 J	0.24 J	0.39 J	0.49 J	2.1	4.1	2.7
Barium	34.3	9.2	15.7	14.8	6.5	4.6	2.9 J	4.3	17.5	12.6	13.6
Beryllium	0.055 J	0.039 J	0.14 J	0.14 J	0.16 U	0.16 U	0.15 U	0.16 U	0.18 U	0.076 J	0.1 J
Cadmium Calcium	0.61 36,500	0.45 U 1,680	0.49 U 12,600	0.49 U 29,900	0.015 J 94.3	0.47 U 157	0.014 J 182	0.054 J 366	0.11 J 2,230	0.044 J 742	0.45 U 555
Chromium	7.2	5.7	17.1	17.2	94.3	1.7	1.4 J	1.9	6.2	10.2	8.4
Cobalt	0.57	0.24 J	0.57	0.56	0.086 J	0.069 J	0.38 U	0.067 J	0.45 U	0.42	0.3 J
Copper	42.1	1.1 J	2.9	3.2	0.73 J	0.54 J	1.4 J	1.9	13.1	4.1	7.9
ron	5,010	1,620	9,030	10,200	2,410	559	903	930	3,430	6,430	5,270
_ead Magnesium	70.3 312	3.7 197	9.1 614	12.1 796	3.9 103	3 46.7	9.1 53.7	12.2 60.4	38.6 247	11 339	19.4 263
Manganese	22.2	5.5	9.7	14	4.6	5.2	6.2	7.6	14.3	7.9	12.5
		0.034 U	0.035 U	0.041	0.034 U	0.034 U	0.033 U	0.019 J	0.039 U	0.044	0.049
Mercury	0.51										
	0.51 2.7 184	1.3	1.8 497	2.1 475	0.55 J 109	0.48 J 78.8 U	0.49 J 76.3 U	0.53 J 78.8 U	1.6 220	1.7 367	1.6 249

Station ID	IR15-SS01	IR15-SS02	IR1	5-SS03	IR15-SS04	IR15-SS05	IR15-SS06	IR15-SS07	IR15-SS08	IR15-SS09	IR15-SS10
Sample ID	IR15-SS01-00-01-09C	IR15-SS02-00-01-09C	IR15-SS03-00-01-09C	IR15-SS03D-00-01-09C	IR15-SS04-00-01-09C	IR15-SS05-00-01-09C	IR15-SS06-00-01-09C	IR15-SS07-00-01-09C	IR15-SS08-00-01-09C	IR15-SS09-00-01-09C	IR15-SS10-00-01-09C
Sample Date	07/10/09	07/10/09	07/10/09	07/10/09	07/10/09	07/10/09	07/10/09	07/10/09	07/10/09	07/10/09	07/10/09
Chemical Name											
Silver	1.6 U	1.5 U	1.6 U	1.6 U	1.6 U	0.17 J	1.5 U	1.6 U	1.8 U	1.5 U	1.5 U
Sodium	17.5 J	6.7 J	40.9 J	68.7 J	202 U	197 U	191 U	197 U	17.1 J	13.8 J	188 U
Thallium	2.4 U	2.3 U	2.4 U	2.4 U	2.4 U	2.4 U	2.3 U	2.4 U	2.7 U	2.3 U	2.3 U
Vanadium	7.5	7.2	20.1	22.3	5.5	2.2 J	2.3 J	2.7 J	8.9	18	13.2
Zinc	170	3.8 U	10	11.9	4 U	3.9 U	6	7.5	26.2	12.5	18
Wet Chemistry											
pH (ph)	7.8	8.3	7.9	8	4.7	4.8	4.8	5.6	5.6	5.2	5.5

- Notes:

 Shading indicates detections

 NA Not analyzed

 J Analyte present, value may or may not be accurate or precise

 J Analyte present, value may be biased low, actual value may be higher

 J+ Analyte present, value may be biased high, actual value may be lower

 R Unreliable Result

 U The material was analyzed for, but not detected

 UJ Analyte not detected, quantitation limit may be inaccurate

 mg/kg Milligrams per kilogram

 ph pH units

 µg/kg Micrograms per kilogram

CTO-11 Camp Lejeune - Site 15 Validated Subsurface Soil Raw Analytical Results July 2009

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Station ID Sample ID	IR15-SB01 IR15-SB01-4-6-09C	IR15 IR15-SB02-2-7-09C	-SB02 IR15-SB02D-2-7-09C	IR15-SB03 IR15-SB03-2-7-09C	IR15-SB04 IR15-SB04-2-7-09C	IR15-SB05 IR15-SB05-2-7-09C	IR15-SB06 IR15-SB06-2-7-09C	IR15-SB07 IR15-SB07-2-4-09C	IR15-SB08 IR15-SB08-2-4-09C	IR15-SB09 IR15-SB09-2-7-09C	IR15-SB10 IR15-SB10-2-4-09C
Sample Date	07/29/09	07/26/09	07/26/09	07/29/09	07/27/09	07/27/09	07/27/09	07/27/09	07/29/09	07/29/09	07/29/09
Chemical Name		0.7,20,00		31,120,330		011=1100		011=1100	011=0100	011-0100	0.7.2.7.00
Volatile Organic Compounds (μg/kg)										10.5	4.0.11
1,1,1-Trichloroethane 1,1,2,2-Tetrachloroethane	1.7 U 1.7 U	2 UJ 2 UJ	2.4 UJ 2.4 UJ	1.8 U 1.8 U	1.9 UJ 1.9 UJ	1.8 UJ 1.8 UJ	1.6 R 1.6 R	2.1 UJ 2.1 UJ	1.6 U 1.6 U	1.9 R 1.9 R	1.6 U 1.6 U
1,1,2-Trichloro-1,2,2-trifluoroethane(Freon-113)	1.7 U	2 UJ	2.4 UJ	1.8 U	1.9 UJ	1.8 UJ	1.6 R	2.1 UJ	1.6 U	1.9 R	1.6 U
1,1,2-Trichloroethane	1.7 U	2 UJ	2.4 UJ	1.8 U	1.9 UJ	1.8 UJ	1.6 R	2.1 UJ	1.6 U	1.9 R	1.6 U
1,1-Dichloroethane	1.7 U	2 UJ	2.4 UJ	1.8 U	1.9 UJ	1.8 UJ	1.6 R	2.1 UJ	1.6 U	1.9 R	1.6 U
1,1-Dichloroethene 1,2,4-Trichlorobenzene	1.7 U 1.7 U	2 UJ 2 UJ	2.4 UJ 2.4 UJ	1.8 U 1.8 U	1.9 UJ 2.4 J	1.8 UJ 1.8 UJ	1.6 R 3.2 R	2.1 UJ 2.5 J	1.6 U 1.9 J	1.9 R 2.4 J	1.6 U 1.6 U
1,2-Dibromo-3-chloropropane	1.7 U	2 UJ	2.4 UJ	1.8 U	1.9 UJ	1.8 UJ	1.6 R	2.1 UJ	1.6 U	1.9 R	1.6 U
1,2-Dibromoethane	1.7 U	2 UJ	2.4 UJ	1.8 U	1.9 UJ	1.8 UJ	1.6 R	2.1 UJ	1.6 U	1.9 R	1.6 U
1,2-Dichlorobenzene	1.7 U	2 UJ	2.4 UJ	1.8 U	1.9 UJ	1.8 UJ	1.6 R	2.1 UJ	1.6 U	1.9 R	1.6 U
1,2-Dichloroethane 1,2-Dichloropropane	1.7 U 1.7 U	2 UJ 2 UJ	2.4 UJ 2.4 UJ	1.8 U 1.8 U	1.9 UJ 1.9 UJ	1.8 UJ 1.8 UJ	1.6 R 1.6 R	2.1 UJ 2.1 UJ	1.6 U 1.6 U	1.9 R 1.9 R	1.6 U 1.6 U
1,3-Dichlorobenzene	1.7 U	2 UJ	2.4 UJ	1.8 U	1.4 J	1.8 UJ	3.2 R	1.6 J	1.6 U	1.3 J	1.6 U
1,4-Dichlorobenzene	1.7 U	2 UJ	2.4 UJ	1.8 U	1.9 UJ	1.8 UJ	1.6 R	1.6 J	1.6 U	1.4 J	1.6 U
2-Butanone	3.4 U	4 UJ	4.8 UJ	3.6 U	6.6 J	3.7 UJ	3.2 R	21 J	3.1 U	15 J	3.2 U
2-Hexanone 4-Methyl-2-pentanone	3.4 U 3.4 U	4 UJ 4 UJ	4.8 UJ 4.8 UJ	3.6 U 3.6 U	3.9 UJ 3.9 UJ	3.7 UJ 3.7 UJ	3.2 R 3.2 R	4.1 J 4.2 UJ	3.1 U 3.1 U	0.6 J 1.7 J	3.2 U 3.2 U
Acetone	3.4 U	42 J	39 J	6.4 J	41 J	19 J	60 J	120 J	18 J	1.7 J	4.6
Benzene	1.7 U	2 UJ	2.4 UJ	1.8 U	0.97 J	1.8 UJ	1.6 R	2.1 UJ	1.6 U	0.42 J	1.6 U
Bromodichloromethane	1.7 U	2 UJ	2.4 UJ	1.8 U	1.9 UJ	1.8 UJ	1.6 R	2.1 UJ	1.6 U	1.9 R	1.6 U
Bromoform Bromomethane	1.7 U 3.4 U	2 UJ 4 UJ	2.4 UJ 4.8 UJ	1.8 U 3.6 U	1.9 UJ 3.9 UJ	1.8 UJ 3.7 UJ	1.6 R 3.2 R	2.1 UJ 4.2 UJ	1.6 U 3.1 R	1.9 R 3.9 R	1.6 U 3.2 U
Carbon disulfide	1.7 U	2 UJ	1.4 J	1.8 U	1.9 UJ	1.8 UJ	1.6 R	2.1 UJ	1.6 U	1.9 R	1.6 U
Carbon tetrachloride	1.7 U	2 UJ	2.4 UJ	1.8 U	1.9 UJ	1.8 UJ	1.6 R	2.1 UJ	1.6 U	1.9 R	1.6 U
Chlorobenzene	1.7 U	2 UJ	2.4 UJ	1.8 U	1.9 UJ	1.8 UJ	1.6 R	2.1 UJ	1.6 U	2.6 J	1.6 U
Chloroethane Chloroform	3.4 U 1.7 U	4 UJ 2 UJ	4.8 UJ 2.4 UJ	3.6 U 1.8 U	3.9 UJ 1.9 UJ	3.7 UJ 1.8 UJ	3.2 R 1.6 R	4.2 UJ 2.1 UJ	3.1 R 1.6 U	3.9 R 1.9 R	3.2 U 1.6 U
Chloromethane	3.4 U	4 UJ	4.8 UJ	3.6 U	3.9 UJ	3.7 UJ	3.2 R	4.2 UJ	3.1 U	3.9 R	3.2 U
cis-1,2-Dichloroethene	1.7 U	2 UJ	2.4 UJ	1.8 U	1.9 UJ	1.8 UJ	1.6 R	2.1 UJ	1.6 U	1.9 R	1.6 U
cis-1,3-Dichloropropene	1.7 U	2 UJ	2.4 UJ	1.8 U	1.9 UJ	1.8 UJ	1.6 R	2.1 UJ	1.6 U	1.9 R	1.6 U
Cyclohexane Dibromochloromethane	1.7 U 1.7 U	2 UJ 2 UJ	2.4 UJ 2.4 UJ	1.8 U 1.8 U	1.9 UJ 1.9 UJ	1.8 UJ 1.8 UJ	1.6 R 1.6 R	2.1 UJ 2.1 UJ	1.6 U 1.6 U	1.9 R 1.9 R	1.6 U 1.6 U
Dichlorodifluoromethane (Freon-12)	1.7 U	2 UJ	2.4 UJ	1.8 U	1.9 UJ	1.8 UJ	1.6 R	2.1 UJ	1.6 U	1.9 R	1.6 U
Ethylbenzene	1.7 U	2 UJ	2.4 UJ	1.8 U	1.9 UJ	1.8 UJ	1.6 R	2.1 UJ	1.6 U	1.9 R	1.6 U
Isopropylbenzene	1.7 U	2 UJ	2.4 UJ	1.8 U	3.9 UJ	1.8 UJ	3.2 R	4.2 UJ	2 U	2.6 R	1.6 U
Methyl acetate Methylcyclohexane	1.7 U 1.7 U	1.9 J 2 UJ	3.5 J 2.4 UJ	1.8 U 1.8 U	1.9 UJ 1.9 UJ	7.8 J 1.8 UJ	1.6 R 1.6 R	2.1 UJ 2.1 UJ	1.6 U 1.6 U	1.9 R 1.9 R	1.6 U 1.6 U
Methylene chloride	3.4 UJ	2.2 J	3.1 J	3.6 UJ	2.9 J	8.9 J	3.2 R	3.3 J	3.1 U	3.9 R	3.2 UJ
Methyl-tert-butyl ether (MTBE)	1.7 UJ	2 UJ	2.4 UJ	1.8 UJ	1.9 UJ	1.8 UJ	1.6 R	2.1 UJ	1.6 U	1.9 R	1.6 UJ
Styrene	1.7 U	2 UJ	2.4 UJ	1.8 U	3.9 UJ	1.8 UJ	3.2 R	2.9 J	3.1 U	2.6 J	1.6 U
Tetrachloroethene Toluene	1.7 U 1.7 U	2 UJ 2 UJ	2.4 UJ 2.4 UJ	1.8 U 1.8 U	1.9 UJ 2.8 J	1.8 UJ 1.8 UJ	1.6 R 1.6 R	2.1 UJ 2.9 J	1.6 U 1.6 U	1.5 J 0.42 J	1.6 U 1.6 U
trans-1,2-Dichloroethene	1.7 U	2 UJ	2.4 UJ	1.8 U	1.9 UJ	1.8 UJ	1.6 R	2.1 UJ	1.6 U	1.9 R	1.6 U
trans-1,3-Dichloropropene	1.7 U	2 UJ	2.4 UJ	1.8 U	1.9 UJ	1.8 UJ	1.6 R	2.1 UJ	1.6 U	1.9 R	1.6 U
Trichloroethene	1.7 U	2 UJ	2.4 UJ	1.8 U	1.9 UJ	1.8 UJ	1.6 R	2.1 UJ	1.6 U	1.9 R	1.6 U
Trichlorofluoromethane(Freon-11) Vinyl chloride	1.7 U 3.4 U	2 UJ 4 UJ	2.4 UJ 4.8 UJ	1.8 U 3.6 U	1.9 UJ 3.9 UJ	1.8 UJ 3.7 UJ	1.6 R 3.2 R	2.1 UJ 4.2 UJ	1.6 U 3.1 U	1.9 R 3.9 R	1.6 U 3.2 U
Xylene, total	1.7 U	2 UJ	2.4 UJ	1.8 U	7.8 UJ	1.8 UJ	6.4 R	8.3 UJ	3.1 U	3.9 R	1.6 U
Semivolatile Organic Compounds (μg/kg)					21211						400.11
1,1-Biphenyl 2,2'-Oxybis(1-chloropropane)	190 U 190 U	190 U 190 U	190 U 190 U	190 U 190 U	210 U 210 U	190 U 190 U	180 U 180 U	210 U 210 U	190 U 190 U	200 U 200 U	180 U 180 U
2,4,5-Trichlorophenol	190 U	190 U	190 U	190 U	210 U	190 U	180 U	210 U	190 U	200 U	180 U
2,4-Dichlorophenol	190 U	190 U	190 U	190 U	210 U	190 U	180 U	210 U	190 U	200 U	180 U
2,4-Dimethylphenol	190 U	190 U	190 U	190 U	210 U	190 U	180 U	210 U	190 U	200 U	180 U
2,4-Dinitrophenol 2,4-Dinitrotoluene	190 U 190 U	190 UJ 190 U	190 UJ 190 U	190 U 190 U	210 U 210 U	190 UJ 190 U	180 U 180 U	210 U 210 U	190 U 190 U	200 U 200 U	180 U 180 U
2,6-Dinitrotoluene	190 U	190 U	190 U	190 U	210 U	190 U	180 U	210 U	190 U	200 U	180 U
2-Chloronaphthalene	190 U	190 U	190 U	190 U	210 U	190 U	180 U	210 U	190 U	200 U	180 U
2-Chlorophenol	190 U	190 U	190 U	190 U	210 U	190 U	180 U	210 U	190 U	200 U	180 U
2-Methylnaphthalene 2-Methylphenol	190 U 190 U	190 U 190 U	190 U 190 U	190 U 190 U	210 U 210 U	190 U 190 U	180 U 180 U	210 U 210 U	190 U 190 U	200 U 200 U	180 U 180 U
2-Nitroaniline	190 U	190 U	190 U	190 U	210 U	190 U	180 U	210 U	190 U	200 U	180 U
2-Nitrophenol	190 U	190 U	190 U	190 U	210 U	190 U	180 U	210 U	190 U	200 U	180 U
3,3'-Dichlorobenzidine	190 UJ	190 UJ	190 UJ	190 UJ	210 UJ	190 UJ	180 UJ	210 UJ	190 UJ	200 UJ	180 UJ
3-Nitroaniline 4,6-Dinitro-2-methylphenol	190 U 190 U	190 U 190 U	190 U 190 U	190 U 190 U	210 U 210 U	190 U 190 U	180 U 180 U	210 U 210 U	190 U 190 U	200 U 200 U	180 U 180 U
4-Bromophenyl-phenylether	190 U	190 U	190 U	190 U	210 U	190 U	180 U	210 U	190 U	200 U	180 U
4-Chloro-3-methylphenol	190 U	190 U	190 U	190 U	210 U	190 U	180 U	210 U	190 U	200 U	180 U
4-Chloroaniline	190 U	190 U	190 U	190 U	210 U	190 U	180 U	210 U	190 U	200 U	180 U
4-Chlorophenyl-phenylether 4-Methylphenol	190 U 190 U	190 U 190 U	190 U 190 U	190 U 190 U	210 U 210 U	190 U 190 U	180 U 180 U	210 U 210 U	190 U 190 U	200 U 200 U	180 U 180 U
4-Nitroaniline	190 UJ	190 UJ	190 UJ	190 UJ	210 UJ	190 UJ	180 UJ	210 UJ	190 UJ	200 UJ	180 UJ
4-Nitrophenol	190 U	190 UJ	190 UJ	190 U	210 U	190 UJ	180 U	210 U	190 U	200 U	180 U
Acenaphthene	190 U	190 U	190 U	190 U	210 U	190 U	180 U	210 U	190 U	200 U	180 U
Acetaphanana	190 U	190 U	190 U	190 U	210 U	190 U	180 U	210 U	190 U	200 U	180 U
Acetophenone	190 U	190 U	190 U	190 U	210 U	190 U	180 U	210 U	190 U	200 U	180 U

CTO-11 Camp Lejeune - Site 15 Validated Subsurface Soil Raw Analytical Results July 2009

Station ID	1										
Tr.	IR15-SB01		-SB02	IR15-SB03	IR15-SB04	IR15-SB05	IR15-SB06	IR15-SB07	IR15-SB08	IR15-SB09	IR15-SB10
Sample ID	IR15-SB01-4-6-09C	IR15-SB02-2-7-09C	IR15-SB02D-2-7-09C	IR15-SB03-2-7-09C	IR15-SB04-2-7-09C	IR15-SB05-2-7-09C	IR15-SB06-2-7-09C	IR15-SB07-2-4-09C	IR15-SB08-2-4-09C	IR15-SB09-2-7-09C	IR15-SB10-2-4-09C
Sample Date	07/29/09	07/26/09	07/26/09	07/29/09	07/27/09	07/27/09	07/27/09	07/27/09	07/29/09	07/29/09	07/29/09
Chemical Name Anthracene	190 U	190 U	190 U	190 U	210 U	190 U	180 U	210 U	190 U	200 U	180 U
Atrazine	190 U	190 UJ	190 UJ	190 U	210 U	190 UJ	180 U	210 U	190 U	200 U	180 U
Benzaldehyde	190 R	190 UJ	190 UJ	190 R	210 R	190 R	180 R	210 R	190 R	200 R	180 R
Benzo(a)anthracene	38 U	37 U	38 U	37 U	42 U	38 U	36 U	41 U	38 U	39 U	36 U
Benzo(a)pyrene	38 U	37 U	38 U	37 U	42 U	38 U	36 U	41 U	38 U	39 U	36 U
Benzo(b)fluoranthene	38 U	37 U	38 U	37 U	42 U	38 U	36 U	41 U	38 U	39 U	36 U
Benzo(g,h,i)perylene Benzo(k)fluoranthene	190 U 190 U	190 U 190 U	190 U 190 U	190 U 190 U	210 U 210 U	190 U 190 U	180 U 180 U	210 U 210 U	190 U 190 U	200 U 200 U	180 U 180 U
bis(2-Chloroethoxy)methane	190 U	190 U	190 U	190 U	210 U	190 U	180 U	210 U	190 U	200 U	180 U
bis(2-Chloroethyl)ether	190 U	190 U	190 U	190 U	210 U	190 U	180 U	210 U	190 U	200 U	180 U
bis(2-Ethylhexyl)phthalate	37 J	320 U	330 U	31 J	360 U	330 U	180 U	210 U	190 U	200 U	32 J
Butylbenzylphthalate	190 U	190 U	190 U	190 U	210 U	190 U	180 U	210 U	190 U	200 U	180 U
Caprolactam	190 U	190 U	190 U	190 U	210 U	190 U 190 U	180 U	210 U	190 U 190 UJ	200 U	180 U
Carbazole Chrysene	190 UJ 190 U	190 U 190 U	190 U 190 U	190 UJ 190 U	210 U 210 U	190 U	180 U 180 U	210 U 210 U	190 UJ	200 UJ 200 U	180 UJ 180 U
Dibenz(a,h)anthracene	38 U	37 U	38 U	37 U	42 U	38 U	36 U	41 U	38 U	39 U	36 U
Dibenzofuran	190 U	190 U	190 U	190 U	210 U	190 U	180 U	210 U	190 U	200 U	180 U
Diethylphthalate	190 U	190 U	190 U	190 U	210 U	190 U	180 U	210 U	190 U	200 U	180 U
Dimethyl phthalate	190 U	190 U	190 U	190 U	210 U	190 U	180 U	210 U	190 U	200 U	180 U
Di-n-butylphthalate	190 U 190 UJ	190 U 190 U	190 U 190 U	190 U 190 UJ	210 U 210 U	190 U 190 U	180 U 180 U	210 U 210 U	190 U 190 UJ	200 U 200 UJ	180 U 180 UJ
Di-n-octylphthalate Fluoranthene	190 UJ 190 U	190 U	190 U	190 UJ 190 U	210 U	190 U	180 U	210 U 210 U	190 UJ 190 U	200 UJ 200 U	180 UJ 180 U
Fluorene	190 U	190 U	190 U	190 U	210 U	190 U	180 U	210 U	190 U	200 U	180 U
Hexachlorobenzene	190 U	190 U	190 U	190 U	210 U	190 U	180 U	210 U	190 U	200 U	180 U
Hexachlorobutadiene	190 U	190 U	190 U	190 U	210 U	190 U	180 U	210 U	190 U	200 U	180 U
Hexachlorocyclopentadiene	190 UJ	190 U	190 U	190 UJ	210 U	190 U	180 U	210 U	190 UJ	200 UJ	180 UJ
Hexachloroethane Indeno(1,2,3-cd)pyrene	190 U 38 U	190 U 37 U	190 U 38 U	190 U 37 U	210 U 42 U	190 U 38 U	180 U 36 U	210 U 41 U	190 U 38 U	200 U 39 U	180 U 36 U
Isophorone	38 U	37 U	38 U	37 U	42 U	38 U	36 U	41 U	38 U	39 U	36 U
Naphthalene	190 U	190 U	190 U	190 U	210 U	190 U	180 U	210 U	190 U	200 U	180 U
n-Nitroso-di-n-propylamine	38 UJ	37 U	38 U	37 UJ	42 U	38 U	36 U	41 U	38 UJ	39 UJ	36 UJ
n-Nitrosodiphenylamine	190 U	190 U	190 U	190 U	210 U	190 U	180 U	210 U	190 U	200 U	180 U
Nitrobenzene	190 U	190 U	190 U	190 U	210 U	190 U	180 U	210 U	190 U	200 U	180 U
Pentachlorophenol Phenanthrene	190 U 190 U	190 U 190 U	190 U 190 U	190 U 190 U	210 U 210 U	190 U 190 U	180 U 180 U	210 U 210 U	190 U 190 U	200 U 200 U	180 U 180 U
Phenol	190 U	190 U	190 U	190 U	210 U	190 U	180 U	210 U	190 U	200 U	180 U
Pyrene	190 U	190 U	190 U	190 U	210 U	190 U	180 U	210 U	190 U	200 U	180 U
Pesticide/Polychlorinated Biphenyls (μg/kg)	4011	2.24	4011	4011	0.4.11	4011	4.0.11	0.50	0.04	10	40
4,4'-DDD 4.4'-DDE	1.9 U 1.9 U	0.61 J 9.7 J	1.9 U 0.54 J	1.9 U 1.9 U	2.1 U 1.6 J	1.9 U 0.56 J	1.8 U 1.8 U	0.58 J 0.68 J	0.61 J 0.92 J	13 6.8	46 95
4,4'-DDT	1.9 U	3.9 J	1.9 UJ	1.9 U	0.92 J	1 J	1.8 U	2.1 U	1.9 U	25	180
Aldrin	1.9 U	1.9 U	1.9 U	1.9 U	2.1 U	1.9 U	1.8 U	2.1 U	1.9 U	2 U	1.8 U
alpha-BHC	1.9 U	1.9 U	1.9 U	1.9 U	2.1 U	1.9 U	1.8 U	2.1 U	1.9 U	2 U	1.8 U
alpha-Chlordane	1.9 U	1.9 U	1.9 U	1.9 U	2.1 U	1.9 U	1.8 U	2.1 U	1.9 U	3.7 J	9.9 J
Aroclor-1016 Aroclor-1221	19 U 19 U	19 U 19 U	19 U 19 U	19 U 19 U	21 U 21 U	19 U	18 U	21 U	19 U		18 UJ
Aroclor-1232	19 0					10 11	10 11	21 11		20 U	
						19 U 19 U	18 U 18 U	21 U 21 U	19 U	20 U	18 UJ
Aroclor-1242	19 U 19 U	19 U 19 U	19 U 19 U	19 U 19 U	21 U 21 U 21 U	19 U 19 U 19 U	18 U 18 U 18 U	21 U 21 U 21 U			
	19 U	19 U	19 U	19 U	21 U	19 U	18 U	21 U	19 U 19 U	20 U 20 U	18 UJ 18 UJ
Aroclor-1242 Aroclor-1248 Aroclor-1254	19 U 19 U 19 U 19 U	19 U 19 U 19 U 19 U	19 U 19 U 19 U 19 U	19 U 19 U 19 U 19 U	21 U 21 U 21 U 21 U	19 U 19 U 19 U 19 U	18 U 18 U 18 U 18 U	21 U 21 U 21 U 21 U	19 U 19 U 19 U 19 U 19 U	20 U 20 U 20 U 20 U 20 U 20 U	18 UJ 18 UJ 18 UJ 18 UJ 18 UJ
Aroclor-1242 Aroclor-1248 Aroclor-1254 Aroclor-1260	19 U 19 U 19 U 19 U 19 U	19 U 19 U 19 U 19 U 19 U	19 U 19 U 19 U 19 U 19 U	19 U 19 U 19 U 19 U 19 U	21 U 21 U 21 U 21 U 21 U	19 U 19 U 19 U 19 U 19 U	18 U 18 U 18 U 18 U 18 U	21 U 21 U 21 U 21 U 21 U	19 U 19 U 19 U 19 U 19 U 19 U	20 U 20 U 20 U 20 U 20 U 20 U 20 U	18 UJ 18 UJ 18 UJ 18 UJ 18 UJ 18 UJ
Aroclor-1242 Aroclor-1248 Aroclor-1254 Aroclor-1260 beta-BHC	19 U 19 U 19 U 19 U 19 U 19 U	19 U 19 U 19 U 19 U 19 U 19 U	19 U 19 U 19 U 19 U 19 U 19 U	19 U 19 U 19 U 19 U 19 U 19 U	21 U 21 U 21 U 21 U 21 U 21 U 21 U 2.1 U	19 U 19 U 19 U 19 U 19 U 19 U	18 U 18 U 18 U 18 U 18 U 18 U	21 U 21 U 21 U 21 U 21 U 21 U 2.1 U	19 U 19 U 19 U 19 U 19 U 19 U 19 U	20 U 20 U 20 U 20 U 20 U 20 U 20 U 20 U	18 UJ 18 UJ 18 UJ 18 UJ 18 UJ 18 UJ 18 UJ
Aroclor-1242 Aroclor-1248 Aroclor-1254 Aroclor-1260	19 U 19 U 19 U 19 U 19 U	19 U 19 U 19 U 19 U 19 U	19 U 19 U 19 U 19 U 19 U	19 U 19 U 19 U 19 U 19 U	21 U 21 U 21 U 21 U 21 U	19 U 19 U 19 U 19 U 19 U	18 U 18 U 18 U 18 U 18 U	21 U 21 U 21 U 21 U 21 U	19 U 19 U 19 U 19 U 19 U 19 U	20 U 20 U 20 U 20 U 20 U 20 U 20 U	18 UJ 18 UJ 18 UJ 18 UJ 18 UJ 18 UJ
Aroclor-1242 Aroclor-1248 Aroclor-1254 Aroclor-1260 beta-BHC delta-BHC	19 U 19 U 19 U 19 U 19 U 19 U 1.9 U	19 U 19 U 19 U 19 U 19 U 19 U 1.9 U	19 U 19 U 19 U 19 U 19 U 1.9 U	19 U 19 U 19 U 19 U 19 U 19 U 1.9 U	21 U 21 U 21 U 21 U 21 U 21 U 2.1 U 2.1 U	19 U 19 U 19 U 19 U 19 U 19 U 1.9 U	18 U 18 U 18 U 18 U 18 U 1.8 U	21 U 21 U 21 U 21 U 21 U 21 U 2.1 U 2.1 U	19 U 19 U 19 U 19 U 19 U 19 U 19 U 1.9 U	20 U 20 U 20 U 20 U 20 U 20 U 20 U 20 U	18 UJ 18 UJ 18 UJ 18 UJ 18 UJ 18 UJ 18 UJ 1.8 U
Aroclor-1242 Aroclor-1248 Aroclor-1254 Aroclor-1260 beta-BHC delta-BHC Dieldrin Endosulfan I Endosulfan II	19 U 1.9 U 1.9 U 1.9 U 1.9 U 1.9 U 1.9 U	19 U 1.9 U	19 U 19 U 19 U 19 U 19 U 1.9 U 1.9 U 1.9 U 1.9 U	19 U 19 U 19 U 19 U 19 U 1.9 U 1.9 U 1.9 U 1.9 U	21 U 21 U 21 U 21 U 21 U 21 U 2.1 U 2.1 U 2.1 U 2.1 U 2.1 U 2.1 U	19 U 19 U 19 U 19 U 19 U 1.9 U 1.9 U 2.3 1.9 U	18 U	21 U 21 U 21 U 21 U 21 U 21 U 2.1 U 2.1 U 2.1 U 2.1 U 2.1 U	19 U 19 U 19 U 19 U 19 U 19 U 19 U 1.9 U 1.9 U 1.9 U 1.9 U	20 U 20 U 20 U 20 U 20 U 20 U 20 U 2 U 2 U 2 U 2 U 2 U 2 U	18 UJ 18 U 1.8 U 1.8 U 1.8 U 1.8 U 1.8 U
Aroclor-1242 Aroclor-1248 Aroclor-1254 Aroclor-1260 beta-BHC delta-BHC Dieldrin Endosulfan I Endosulfan II Endosulfan sulfate	19 U 1.9 U	19 U 1.9 U	19 U 19 U 19 U 19 U 19 U 1.9 U 1.9 U 1.9 U 1.9 U 1.9 U 1.9 U	19 U 1.9 U	21 U 21 U 21 U 21 U 21 U 21 U 2.1 U 2.1 U 2.1 U 2.1 U 2.1 U 2.1 U 2.1 U	19 U 19 U 19 U 19 U 19 U 1.9 U 1.9 U 2.3 1.9 U 1.9 U	18 U 1.8 U	21 U 21 U 21 U 21 U 21 U 21 U 2.1 U 2.1 U 2.1 U 2.1 U 2.1 U 2.1 U	19 U	20 U 20 U 20 U 20 U 20 U 20 U 2 U 2 U 2 U 2 U 2 U 2 U 2 U 2 U	18 UJ 1.8 U
Aroclor-1242 Aroclor-1248 Aroclor-1254 Aroclor-1260 beta-BHC delta-BHC Dieldrin Endosulfan I Endosulfan II Endosulfan sulfate Endrin	19 U 19 U 19 U 19 U 19 U 19 U 1.9 U	19 U 1.9 U	19 U 1.9 U	19 U 1.9 U	21 U 21 U 21 U 21 U 21 U 21 U 2.1 U 2.1 U 2.1 U 2.1 U 2.1 U 2.1 U 2.1 U 2.1 U	19 U 1.9 U 2.3 1.9 U	18 U 1.8 U	21 U 21 U 21 U 21 U 21 U 21 U 2.1 U 2.1 U 2.1 U 2.1 U 2.1 U 2.1 U 2.1 U 2.1 U	19 U	20 U 20 U 20 U 20 U 20 U 20 U 20 U 2	18 UJ 1.8 U
Aroclor-1242 Aroclor-1248 Aroclor-1254 Aroclor-1260 peta-BHC delta-BHC Dieldrin Endosulfan I Endosulfan sulfate Endrin Endrin aldehyde	19 U 1.9 U	19 U 1.9 U	19 U	19 U 1.9 U	21 U 21 U 21 U 21 U 21 U 21 U 2.1 U 2.1 U 2.1 U 2.1 U 2.1 U 2.1 U 2.1 U 2.1 U 2.1 U	19 U 1.9 U 2.3 1.9 U	18 U 1.8 U	21 U 21 U 21 U 21 U 21 U 21 U 2.1 U 2.1 U 2.1 U 2.1 U 2.1 U 2.1 U 2.1 U 2.1 U 2.1 U	19 U	20 U 20 U 20 U 20 U 20 U 20 U 20 U 2	18 UJ 18 U 1.8 U
Aroclor-1242 Aroclor-1248 Aroclor-1254 Aroclor-1260 beta-BHC delta-BHC Dieldrin Endosulfan I Endosulfan II Endosulfan sulfate Endrin	19 U 19 U 19 U 19 U 19 U 19 U 1.9 U	19 U 1.9 U	19 U 1.9 U	19 U 1.9 U	21 U 21 U 21 U 21 U 21 U 21 U 2.1 U 2.1 U 2.1 U 2.1 U 2.1 U 2.1 U 2.1 U 2.1 U	19 U 1.9 U 2.3 1.9 U	18 U 1.8 U	21 U 21 U 21 U 21 U 21 U 21 U 2.1 U 2.1 U 2.1 U 2.1 U 2.1 U 2.1 U 2.1 U 2.1 U	19 U	20 U 20 U 20 U 20 U 20 U 20 U 20 U 2	18 UJ 1.8 U
Aroclor-1242 Aroclor-1248 Aroclor-1254 Aroclor-1260 beta-BHC delta-BHC Dieldrin Endosulfan I Endosulfan II Endosulfan sulfate Endrin Endrin Aldehyde Endrin ketone gamma-BHC (Lindane) gamma-Chlordane	19 U 19 U 19 U 19 U 19 U 19 U 1.9 U	19 U 1.9 U	19 U	19 U 1.9 U	21 U 21 U 21 U 21 U 21 U 21 U 2.1 U	19 U 1.9 U 1.9 U 2.3 1.9 U	18 U 1.8 U	21 U 21 U 21 U 21 U 21 U 21 U 2.1 U	19 U	20 U 20 U 20 U 20 U 20 U 20 U 20 U 2	18 UJ 18 U 1.8 U
Aroclor-1242 Aroclor-1248 Aroclor-1260 Deta-BHC delta-BHC Dieldrin Endosulfan I Endosulfan sulfate Endrin aldehyde Endrin ketone gamma-BHC (Lindane) damma-Chlordane Heptachlor	19 U 19 U 19 U 19 U 19 U 19 U 1.9 U	19 U 1.9 U	19 U	19 U	21 U 21 U 21 U 21 U 21 U 21 U 2.1 U	19 U	18 U	21 U 21 U 21 U 21 U 21 U 21 U 2.1 U	19 U	20 U	18 UJ 18 U 1.8 U
Aroclor-1242 Aroclor-1248 Aroclor-1254 Aroclor-1260 beta-BHC delta-BHC Dieldrin Endosulfan I Endosulfan II Endosulfan sulfate Endrin Endrin Hendrin Endrin Endrin Hendrin Endrin Endr	19 U 1.9 U	19 U 1.9 U	19 U	19 U 1.9 U	21 U	19 U 1.9 U 1.9 U 2.3 1.9 U	18 U	21 U 21 U 21 U 21 U 21 U 21 U 2.1 U	19 U	20 U	18 UJ 18 U 1.8 U
Aroclor-1242 Aroclor-1248 Aroclor-1254 Aroclor-1260 beta-BHC delta-BHC Dieldrin Endosulfan I Endosulfan II Endosulfan sulfate Endrin Endrin aldehyde Endrin ketone gamma-BHC (Lindane) gamma-Chlordane Heptachlor Heptachlor epoxide Methoxychlor	19 U 1.9 U	19 U 1.9 U	19 U 1.9 U	19 U 1.9 U	21 U	19 U 1.9 U	18 U	21 U 21 U 21 U 21 U 21 U 21 U 2.1 U	19 U	20 U 20 U 20 U 20 U 20 U 20 U 2	18 UJ 1.8 U
Aroclor-1242 Aroclor-1248 Aroclor-1254 Aroclor-1260 beta-BHC delta-BHC Dieldrin Endosulfan I Endosulfan II Endosulfan sulfate Endrin Endrin Hendrin Endrin Endrin Hendrin Endrin Endr	19 U 1.9 U	19 U 1.9 U	19 U	19 U 1.9 U	21 U 21 U 21 U 21 U 21 U 21 U 2.1 U	19 U 1.9 U 1.9 U 2.3 1.9 U	18 U	21 U 21 U 21 U 21 U 21 U 21 U 2.1 U	19 U	20 U	18 UJ 18 U 1.8 U
Aroclor-1242 Aroclor-1248 Aroclor-1254 Aroclor-1260 beta-BHC delta-BHC Dieldrin Endosulfan I Endosulfan II Endosulfan sulfate Endrin Endrin aldehyde Endrin ketone gamma-BHC (Lindane) gamma-Chlordane Heptachlor epoxide Methoxychlor	19 U 1.9 U	19 U 19 U 19 U 19 U 19 U 19 U 1.9 U	19 U	19 U 1.9 U	21 U	19 U 19 U 19 U 19 U 19 U 19 U 1.9 U 1.9 U 2.3 1.9 U	18 U	21 U	19 U	20 U 20 U 20 U 20 U 20 U 20 U 2	18 UJ 1.8 U
Aroclor-1242 Aroclor-1248 Aroclor-1254 Aroclor-1260 beta-BHC delta-BHC Dieldrin Endosulfan I Endosulfan II Endosulfan sulfate Endrin Endrin aldehyde Endrin ketone gamma-Chlordane Heptachlor Heptachlor epoxide Methoxychlor Toxaphene Total Metals (mg/kg) Aluminum	19 U 19 U 19 U 19 U 19 U 19 U 1.9 U	19 U 1.9 U	19 U 1.9 U	19 U 1.9 U 1	21 U	19 U 1.9 U	18 U 1.8 U	21 U 21 U 21 U 21 U 21 U 21 U 21 U 2.1 U	19 U	20 U 20 U 20 U 20 U 20 U 20 U 2	18 UJ 18 U 1.8 U
Aroclor-1242 Aroclor-1248 Aroclor-1254 Aroclor-1260 beta-BHC delta-BHC Dieldrin Endosulfan II Endosulfan II Endosulfan sulfate Endrin Endrin aldehyde Endrin etone gamma-BHC (Lindane) gamma-Chlordane Heptachlor Heptachlor Heptachlor epoxide Methoxychlor Toxaphene Total Metals (mg/kg) Aluminum Antimony	19 U 1.9 U 38 U 3,380 0.82 J-	19 U 1.9 U	19 U	19 U 1.9 U 1	21 U	19 U 1.9 U 2.3 1.9 U 3.9 U 1.9 U 3.9 U 3.9 U 3.9 U 3.9 U 3.9 U 4.10 U 4.10 U 4.10 U 4.10 U 4.10 U 4.10 U	18 U 1.8 U 1.5 U 1.5 U 1.5 U 1.5 U 1.5 U 1.5 U	21 U	19 U	20 U	18 UJ 18 U 1.8 U 1.9 U 1
Aroclor-1242 Aroclor-1248 Aroclor-1260 Deta-BHC delta-BHC Dieldrin Endosulfan I Endosulfan II Endosulfan sulfate Endrin ladehyde Endrin ketone gamma-BHC (Lindane) gamma-Chlordane Heptachlor epoxide Methoxychlor Toxaphene Total Metals (mg/kg) Aluminum Antimony Arsenic	19 U 1.9 U 3.9 U 1.9 U 1	19 U	19 U	19 U	21 U	19 U	18 U	21 U	19 U	20 U	18 UJ 18 U 1.8 U 1
Aroclor-1242 Aroclor-1248 Aroclor-1254 Aroclor-1260 beta-BHC delta-BHC Dieldrin Endosulfan I Endosulfan II Endosulfan sulfate Endrin Endrin aldehyde Endrin ketone gamma-BHC (Lindane) gamma-Chlordane Heptachlor epoxide Methoxychlor Toxaphene Total Metals (mg/kg) Aluminomy Arsenic Barium	19 U	19 U 1.9 U	19 U	19 U	21 U	19 U 1.9 U 1	18 U	21 U	19 U	20 U	18 UJ 1.8 U
Aroclor-1242 Aroclor-1248 Aroclor-1260 Deta-BHC delta-BHC Dieldrin Endosulfan I Endosulfan II Endosulfan sulfate Endrin ladehyde Endrin ketone gamma-BHC (Lindane) gamma-Chlordane Heptachlor epoxide Methoxychlor Toxaphene Total Metals (mg/kg) Aluminum Antimony Arsenic	19 U 1.9 U 3.9 U 1.9 U 1	19 U	19 U	19 U	21 U	19 U	18 U	21 U	19 U	20 U	18 UJ 18 U 1.8 U 1
Aroclor-1242 Aroclor-1248 Aroclor-1254 Aroclor-1260 beta-BHC delta-BHC Dieldrin Endosulfan I Endosulfan II Endosulfan sulfate Endrin Endrin aldehyde Endrin ketone gamma-BHC (Lindane) gamma-Chlordane Heptachlor Heptachlor Toxaphene Total Metals (mg/kg) Aluminum Antimony Arsenic Barium Beryllium	19 U 1.9 U 1	19 U	19 U	19 U	21 U	19 U 1.9 U 1.9 U 2.3 1.9 U 3.9 U 1.9 U	18 U	21 U	19 U	20 U	18 UJ 1.8 U
Aroclor-1242 Aroclor-1248 Aroclor-1254 Aroclor-1260 beta-BHC delta-BHC Dieldrin Endosulfan I Endosulfan II Endosulfan sulfate Endrin Endrin aldehyde Endrin ketone gamma-BHC (Lindane) gamma-Chlordane Heptachlor Heptachlor epoxide Methoxychlor Toxaphene Fotal Metals (mg/kg) Aluminum Antimony Arsenic Barium Beryllium Cadmium Calcium Chromium	19 U	19 U	19 U	19 U	21 U	19 U	18 U	21 U	19 U	20 U	18 UJ 1.8 U
Aroclor-1242 Aroclor-1254 Aroclor-1254 Aroclor-1260 beta-BHC beta-BHC Dieldrin Endosulfan I Endosulfan II Endosulfan sulfate Endrin aldehyde Endrin ketone gamma-BHC (Lindane) gamma-Chlordane Heptachlor Heptachlor Foxaphene Total Metals (mg/kg) Aluminum Antimony Arsenic Barium Beryllium Cadmium Calcium	19 U	19 U	19 U	19 U	21 U	19 U	18 U	21 U	19 U	20 U	18 UJ 18 U 1.8 U 1

Station ID	IR15-SB01	IR15	i-SB02	IR15-SB03	IR15-SB04	IR15-SB05	IR15-SB06	IR15-SB07	IR15-SB08	IR15-SB09	IR15-SB10
Sample ID	IR15-SB01-4-6-09C	IR15-SB02-2-7-09C	IR15-SB02D-2-7-09C	IR15-SB03-2-7-09C	IR15-SB04-2-7-09C	IR15-SB05-2-7-09C	IR15-SB06-2-7-09C	IR15-SB07-2-4-09C	IR15-SB08-2-4-09C	IR15-SB09-2-7-09C	IR15-SB10-2-4-09C
Sample Date	07/29/09	07/26/09	07/26/09	07/29/09	07/27/09	07/27/09	07/27/09	07/27/09	07/29/09	07/29/09	07/29/09
Chemical Name											
Iron	5,830	4,050	2,640	2,540	3,470	2,260	718	1,290	153 J+	179,000 J+	3,020
Lead	483	28.4	21.6	2.9	53	4.6	2.7	5.7	1.3 J	111	5.8
Magnesium	219	174	178	130	206	180	58	89.6	17.2 J	200	105
Manganese	69.6	9.2	9.2	6.8	21.9 J+	5.9	5.6 J+	8 J+	1.5	626	6.9
Mercury	0.14	0.036	0.013 J	0.033 U	0.036 J	0.035 U	0.0027 J	0.032 J	0.033 U	0.037 U	0.045
Nickel	3.9	1.7	1.5	0.79 U	1.5 J	0.88	0.74 J	0.74 J	0.82 U	24.4	1
Potassium	143	121	137	144	199	166	54.4 J	64.3 J	18.2 J	236 J	102
Selenium	1.6 U	1.6 U	1.6 U	1.6 U	1.8 U	1.6 U	1.5 U	1.7 U	1.6 U	8.6 U	1.6 U
Silver	1.6 U	1.6 U	1.6 U	1.6 U	1.8 U	1.6 U	1.5 U	1.7 U	1.6 U	8.6 U	1.6 U
Sodium	202 U	8.8 J	7.7 J	5.6 J	15 J	7.2 J	4.3 J	8.2 J	205 U	1,080 U	194 U
Thallium	2.4 U	2.3 U	2.4 U	2.4 U	2.7 U	2.5 U	2.3 U	2.6 U	2.5 U	1.9 J	2.3 U
Vanadium	7	10.4 J+	7.3 J+	6	8.9 J	8.8 J+	2.3 J	3.4 J	4.1 U	21.5 U	7.1
Zinc	345	19.5	17.1	3.9 U	34.3	4.1 U	1.5 J	4.1 J	4.1 U	99	8 U
Wet Chemistry											
pH (ph)	7.5	6.9	7.3	5.1	7.4	5.9	5.4	6	6.8	7.5	5

- Notes:

 Shading indicates detections

 NA Not analyzed

 J Analyte present, value may or may not be accurate or precise
 J Analyte present, value may be biased low, actual value may be higher
 J Analyte present, value may be biased high, actual value may be lower
 R Unreliable Result
 U The material was analyzed for, but not detected
 UJ Analyte not detected, quantitation limit may be inaccurate
 mg/kg Milligrams per kilogram
 ph pH units

- ph pH units μg/kg Micrograms per kilogram

CTO-11 Camp Lejeune - Site 15 Validated Groundwater Raw Analytical Results July 2009

Station ID	ID45 TW04	ID45 TW02	ID4	TW02	ID45 TMO4	ID45 TWOS
Sample ID	IR15-TW01 IR15-TW01-09C	IR15-TW02 IR15-TW02-09C	IR15-TW03-09C	5-TW03 IR15-TW03D-09C	IR15-TW04 IR15-TW04-09C	IR15-TW05 IR15-TW05-09C
Sample Date	07/29/09	07/29/09	07/28/09	07/28/09	07/29/09	07/28/09
Chemical Name	Ï					
Volatile Organic Compounds (μg/l)	4.11	4.11	4 111	4.0	4.11	4.0
1,1,1-Trichloroethane 1,1,2,2-Tetrachloroethane	1 U	1 U	1 UJ 2.4 UJ	1 R 2.4 R	1 U	1 R 2.4 R
1,1,2-Trichloro-1,2,2-trifluoroethane(Freon-113)	1 U	1 U	1 UJ	1 R	1 U	1 R
1,1,2-Trichloroethane	1 U	1 U	1 UJ	1 R	1 U	1 R
1,1-Dichloroethane	1 U	1 U	1 UJ	1 R	1 U	1 R
1,1-Dichloroethene 1,2,4-Trichlorobenzene	1 U	1 U	1 UJ 1 UJ	1 R 1 R	1 U	1 R 1 R
1,2-Dibromo-3-chloropropane	2 R	2 R	2 R	2 R	2 R	2 R
1,2-Dibromoethane	1 U	1 U	1 UJ	1 R	1 U	1 R
1,2-Dichlorobenzene	1 U	1 U	1 UJ	1 R	1 U	1 R
1,2-Dichloroethane 1,2-Dichloropropane	1 U	1 U 1 U	1 UJ 1 UJ	1 R 1 R	1 U	1 R 1 R
1,3-Dichlorobenzene	1 U	1 U	1 UJ	1 R	1 U	1 R
1,4-Dichlorobenzene	1 U	1 U	1 UJ	1 R	1 U	1 R
2-Butanone	5 U	5 U	5 UJ	5 R	5 U	5 R
2-Hexanone	5 U	5 U	5 UJ	5 R	5 U	5 R
4-Methyl-2-pentanone Acetone	5 U 5 U	5 U 5 U	5 UJ 5 UJ	5 R 5 R	5 U 5 U	5 R 5 R
Benzene	1 U	1 U	1 UJ	1 R	1 U	1 R
Bromodichloromethane	1 U	1 U	1 UJ	1 R	1 U	1 R
Bromoform	1 U	1 U	1 UJ	1 R	1 U	1 R
Bromomethane Carbon disulfide	1.1 U 1 U	1.1 U 1 U	1.1 UJ 1 UJ	1.1 R 1 R	1.1 U 1 U	1.1 R 1 R
Carbon distillide Carbon tetrachloride	1 U	1 U	1 UJ	1 R	1 U	1 R
Chlorobenzene	1 U	1 U	1 UJ	1 R	1 U	1 R
Chloroethane	1 UJ	1 UJ	1 UJ	1 R	1 UJ	1 R
Chloroform	1 U	1 U	1 UJ	1 R	1 U	1 R
Chloromethane cis-1,2-Dichloroethene	1 UJ 1 U	1 UJ 1 U	1 UJ 1 UJ	1 R 1 R	1 UJ 1 U	1 R 1 R
cis-1,3-Dichloropropene	1 U	1 U	1 UJ	1 R	1 U	1 R
Cyclohexane	1 U	1 U	1 UJ	1 R	1 U	1 R
Dibromochloromethane	1 U	1 U	1 UJ	1 R	1 U	1 R
Dichlorodifluoromethane (Freon-12)	1 UJ 1 U	1 UJ 1 U	1 UJ 1 UJ	1 R 1 R	1 UJ 1 U	1 R
Ethylbenzene Isopropylbenzene	1 U	1 U	1 UJ	4.9 J	1 U	2.3 R 1 R
Methyl acetate	1 U	1 U	1 UJ	1 R	1 U	1 R
Methylcyclohexane	1 U	1 U	1 UJ	1 R	1 U	1 R
Methylene chloride	1 U	1 U	1 UJ	1 R	1 U	1 R
Methyl-tert-butyl ether (MTBE) Styrene	1 U	1 U	1 UJ 1 UJ	1 R 5.9 J	1 U	1 R 1 R
Tetrachloroethene	1.1 U	1.1 U	1.1 UJ	1.1 R	1.1 U	1.1 R
Toluene	1 U	1 U	1 UJ	1 R	1 U	1 R
trans-1,2-Dichloroethene	1 U	1 U	1 UJ	1 R	1 U	1 R
trans-1,3-Dichloropropene Trichloroethene	1 U 5.1 U	1 U 5.1 U	1 UJ 5.1 UJ	1 R 5.1 R	1 U 5.1 U	1 R 5.1 R
Trichlorofluoromethane(Freon-11)	1 UJ	1 UJ	1 UJ	1 R	1 UJ	1 R
Vinyl chloride	1 U	1 U	1 UJ	1 R	1 U	1 R
Xylene, total	1.2 U	1.2 U	1.2 UJ	1.2 R	1.2 U	1.2 R
Semivolatile Organic Compounds (μg/l)	1					
1,1-Biphenyl	11 U	10 U	NA	NA	11 U	NA
2,2'-Oxybis(1-chloropropane)	11 U	10 U	NA	NA	11 U	NA
2,4,5-Trichlorophenol	11 U	10 U	NA NA	NA NA	11 U	NA NA
2,4-Dichlorophenol 2,4-Dimethylphenol	11 U 11 U	10 U 10 U	NA NA	NA NA	11 U 11 U	NA NA
2,4-Dintethylphenol	21 U	20 U	NA NA	NA NA	22 U	NA NA
2,4-Dinitrotoluene	11 U	10 U	NA	NA	11 U	NA
2,6-Dinitrotoluene	11 U	10 U	NA NA	NA	11 U	NA
2-Chloronaphthalene 2-Chlorophenol	11 U 11 U	10 U 10 U	NA NA	NA NA	11 U 11 U	NA NA
2-Methylnaphthalene	11 U	10 U	NA NA	NA NA	11 U	NA NA
2-Methylphenol	11 UJ	10 UJ	NA	NA	11 UJ	NA
2-Nitroaniline	11 U	10 U	NA	NA	11 U	NA
2-Nitrophenol	11 U	10 U	NA NA	NA NA	11 U	NA NA
3,3'-Dichlorobenzidine 3-Nitroaniline	21 UJ 11 U	20 UJ 10 U	NA NA	NA NA	22 UJ 11 U	NA NA
4,6-Dinitro-2-methylphenol	21 U	20 U	NA NA	NA NA	22 U	NA
4-Bromophenyl-phenylether	11 U	10 U	NA	NA	11 U	NA
4-Chloro-3-methylphenol	11 U	10 U	NA NA	NA NA	11 U	NA NA
4-Chloroaniline 4-Chlorophenyl-phenylether	11 U 11 U	10 U 10 U	NA NA	NA NA	11 U 11 U	NA NA
4-Uniorophenyi-phenyiether 4-Methylphenol	21 U	20 U	NA NA	NA NA	22 U	NA NA
4-Nitroaniline	11 U	10 U	NA	NA	11 U	NA
4-Nitrophenol	21 U	20 U	NA	NA	22 U	NA
Acenaphthylene	11 U	10 U 10 U	NA NA	NA NA	11 U	NA NA
Acenaphthylene Acetophenone	11 U 11 U	10 U	NA NA	NA NA	11 U 11 U	NA NA
rp.10110110		100	17/7	1471	0	13/1

CTO-11 Camp Lejeune - Site 15 Validated Groundwater Raw Analytical Results July 2009

	11	T	1		1	
Station ID	IR15-TW01	IR15-TW02		5-TW03	IR15-TW04	IR15-TW05
Sample ID Sample Date	IR15-TW01-09C 07/29/09	1R15-TW02-09C 07/29/09	IR15-TW03-09C 07/28/09	IR15-TW03D-09C 07/28/09	IR15-TW04-09C 07/29/09	IR15-TW05-09C 07/28/09
Chemical Name	01/23/03	01129109	01/20/03	01/20/09	01129/09	01/20/03
Anthracene	11 U	10 U	NA	NA	11 U	NA
Atrazine	21 U	20 U	NA	NA	22 U	NA
Benzaldehyde	11 R	10 R	NA	NA	11 R	NA
Benzo(a)anthracene Benzo(a)pyrene	11 U 11 U	10 U 10 U	NA NA	NA NA	11 U 11 U	NA NA
Benzo(b)fluoranthene	11 U	10 U	NA NA	NA NA	11 U	NA NA
Benzo(g,h,i)perylene	11 U	10 U	NA	NA	11 U	NA
Benzo(k)fluoranthene	11 U	10 U	NA	NA	11 U	NA
bis(2-Chloroethoxy)methane bis(2-Chloroethyl)ether	11 U 11 U	10 U 10 U	NA NA	NA NA	11 U 11 U	NA NA
bis(2-Ethylhexyl)phthalate	11 U	10 U	NA NA	NA NA	11 U	NA NA
Butylbenzylphthalate	11 U	10 U	NA	NA	11 U	NA
Caprolactam	11 U	10 U	NA	NA	11 U	NA
Carbazole Chrysene	11 U 11 U	10 U 10 U	NA NA	NA NA	11 U 11 U	NA NA
Dibenz(a,h)anthracene	11 U	10 U	NA NA	NA NA	11 U	NA NA
Dibenzofuran	11 U	10 U	NA	NA	11 U	NA
Diethylphthalate	11 U	10 U	NA	NA	11 U	NA
Dimethyl phthalate Di-n-butylphthalate	11 U 21 U	10 U 20 U	NA NA	NA NA	11 U 22 U	NA NA
Di-n-octylphthalate	11 U	10 U	NA NA	NA NA	11 U	NA NA
Fluoranthene	11 U	10 U	NA	NA	11 U	NA
Fluorene	11 U	10 U	NA NA	NA NA	11 U	NA NA
Hexachlorobenzene Hexachlorobutadiene	11 U 11 U	10 U 10 U	NA NA	NA NA	11 U 11 U	NA NA
Hexachlorocyclopentadiene	11 U	10 U	NA NA	NA NA	11 U	NA NA
Hexachloroethane	11 U	10 U	NA	NA	11 U	NA
Indeno(1,2,3-cd)pyrene	11 U	10 U	NA	NA	11 U	NA
Isophorone Naphthalene	11 U 11 U	10 U 10 U	NA NA	NA NA	11 U 11 U	NA NA
n-Nitroso-di-n-propylamine	11 U	10 U	NA NA	NA NA	11 U	NA NA
n-Nitrosodiphenylamine	11 U	10 U	NA	NA	11 U	NA
Nitrobenzene	11 U	10 U	NA	NA NA	11 U	NA
Pentachlorophenol Phenanthrene	21 U 11 U	20 U 10 U	NA NA	NA NA	22 U 11 U	NA NA
Phenol	11 U	10 U	NA NA	NA NA	11 U	NA NA
Pyrene	11 U	10 U	NA	NA	11 U	NA
B						
Pesticide/Polychlorinated Biphenyls (μg/l) 4.4'-DDD	0.051 U	0.052 U	NA	NA	0.053 U	NA
4,4'-DDE	0.051 U	0.052 U	NA NA	NA NA	0.053 U	NA NA
4,4'-DDT	0.051 U	0.052 U	NA	NA	0.053 U	NA
Aldrin	0.051 U	0.052 U	NA	NA	0.053 U	NA
alpha-BHC alpha-Chlordane	0.051 U 0.051 U	0.052 U 0.052 U	NA NA	NA NA	0.053 U 0.053 U	NA NA
Aroclor-1016	0.51 U	0.52 U	NA NA	NA NA	0.53 U	NA NA
Aroclor-1221	0.51 U	0.52 U	NA	NA	0.53 U	NA
Aroclor-1232	0.51 U	0.52 U	NA	NA	0.53 U	NA
Aroclor-1242 Aroclor-1248	0.51 U 0.51 U	0.52 U 0.52 U	NA NA	NA NA	0.53 U 0.53 U	NA NA
Aroclor-1254	0.51 U	0.52 U	NA NA	NA	0.53 U	NA NA
Aroclor-1260	0.51 U	0.52 U	NA	NA	0.53 U	NA
beta-BHC	0.051 U	0.052 U	NA NA	NA NA	0.053 U	NA NA
delta-BHC Dieldrin	0.051 U 0.051 U	0.052 U 0.052 U	NA NA	NA NA	0.053 U 0.053 U	NA NA
Endosulfan I	0.051 U	0.052 U	NA NA	NA NA	0.053 U	NA NA
Endosulfan II	0.051 U	0.052 U	NA	NA	0.053 U	NA
Endosulfan sulfate	0.051 U	0.052 U	NA NA	NA NA	0.053 U	NA NA
Endrin Endrin aldehyde	0.051 U 0.051 U	0.052 U 0.052 U	NA NA	NA NA	0.053 U 0.053 U	NA NA
Endrin ketone	0.051 U	0.052 U	NA NA	NA	0.053 U	NA NA
gamma-BHC (Lindane)	0.051 U	0.052 U	NA	NA	0.053 U	NA
gamma-Chlordane	0.051 U	0.052 U	NA NA	NA NA	0.053 U	NA NA
Heptachlor Heptachlor epoxide	0.051 U 0.051 U	0.052 U 0.052 U	NA NA	NA NA	0.053 U 0.053 U	NA NA
Methoxychlor	0.051 U	0.052 U	NA NA	NA	0.053 U	NA NA
Toxaphene	1 U	1 U	NA	NA	1.1 U	NA
Total Matala (vall)	 					
Total Metals (µg/l) Aluminum	45.8 J	148 J	612 J	1,000 U	307 J	3,360
Antimony	20 U	20 U	20 U	20 U	20 U	20 U
Arsenic	20 U	20 U	20 U	20 U	3.2 J	20 U
Barium	28 J	24.3 J	92.1	95	24.1 J	19.2 J
Beryllium Cadmium	2 U 6 U	2 U 6 U	0.17 J 6 U	0.18 J 6 U	2 U 6 U	2 U 6 U
Cadmium Calcium	27,500	4,110	3,580	3,540	45,500	42,500
Chromium	20 U	20 U	20 U	1.7 J	20 U	5 J
Cobalt	3.9 J	0.63 J	1 J	2.6 J	0.66 J	5 U
Copper	20 U	2.8 J	20 U	2.9 J	20 U	3.8 J

CTO-11 Camp Lejeune - Site 15 Validated Groundwater Raw Analytical Results July 2009

Station ID	IR15-TW01	IR15-TW02	ID4	5-TW03	IR15-TW04	IR15-TW05
Sample ID			IR15-TW03-09C		IR15-TW04-09C	
Sample Date	07/29/09	07/29/09	07/28/09	07/28/09	07/29/09	07/28/09
p	07/29/09	07/29/09	07/28/09	07/28/09	07/29/09	07/28/09
Chemical Name						
Iron	25,800	2,910	6,450	6,440	10,600	1,040
Lead	20 U	20 U	20 U	20 U	20 U	20 U
Magnesium	1,410	393	4,520	4,620	2,940	1,040
Manganese	439	49.6	87	89.6	149	5.2
Mercury	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Nickel	30	21.2	10.1	12.1	10 U	2.3 J
Potassium	1,330	2,540	1,480	1,550	808 J	624 J
Selenium	20 U	20 U	20 U	20 U	20 U	20 U
Silver	20 U	20 U	20 U	20 U	20 U	20 U
Sodium	1,590 J	5,120	7,670	8,000	2,910	4,510
Thallium	30 U	30 U	30 U	30 U	3.2 J	30 U
Vanadium	50 U	50 U	50 U	50 U	50 U	50 U
Zinc	5.3 J	5.5 J	10.9 J	7.8 J	9.2 J	7.1 J
Dissolved Metals (µg/l)						
Aluminum, Dissolved	1,000 U	40 J	516 J	629 J	1,000 U	1,000 U
Antimony, Dissolved	20 U	20 U	20 U	20 U	20 U	20 U
Arsenic, Dissolved	20 U	20 U	20 U	20 U	20 U	20 U
Barium, Dissolved	25.6 J	21.8 J	94	96.8	23.2 J	20 U
Beryllium, Dissolved	2 U	0.089 J	0.21 J	0.2 J	2 U	2 U
Cadmium, Dissolved	6 U	6 U	6 U	6 U	6 U	6 U
Calcium, Dissolved	25,000	3,980	3,550	3,710	44,100	42,900
Chromium, Dissolved	20 U	20 U	20 U	20 U	20 U	20 U
Cobalt, Dissolved	3.1 J	0.54 J	1.1 J	1.1 J	0.66 J	5 U
Copper, Dissolved	2.7 J	4.6 J	2.7 J	20 U	20 U	20 U
Iron, Dissolved	20,500	2,570	6,620	6,720	7,240	102 J
Lead, Dissolved	20 U	20 U	20 U	20 U	20 U	20 U
Magnesium, Dissolved	1,350	370	4,580	4,740	2,840	912
Manganese, Dissolved	236	45.7	90.2	88.8	165	2.8 J
Mercury, Dissolved	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Nickel, Dissolved	25	23	10.2	10.4	10 U	10 U
Potassium, Dissolved	1,110	2,460	1,560	1,600	780 J	472 J
Selenium, Dissolved	20 U	20 U	20 U	20 U	20 U	20 U
Silver, Dissolved	20 U	20 U	20 U	20 U	20 U	20 U
Sodium, Dissolved	1,580 J	5,010	7,910	8,120	2,900	4,290
Thallium, Dissolved	30 U	30 U	30 U	30 U	30 U	30 U
Vanadium, Dissolved	50 U	50 U	50 U	50 U	50 U	50 U
Zinc, Dissolved	50 U	9.9 J	7.6 J	12.1 J	50 U	50 U
Wet Chemistry						
pH (ph)	NA	NA	NA	NA	NA	6.4

Shading indicates detections

- Shading indicates detections

 NA Not analyzed

 J Analyte present, value may or may not be accurate or precise

 R Unreliable Result

 U The material was analyzed for, but not detected

 UJ Analyte not detected, quantitation limit may be inaccurate

 ph pH units

 uol Microorams per liter

- μg/I Micrograms per liter

laa	T	July 200		12.17.0000	10.17.0001	10.10.000
Station ID Sample ID	IR1 IR17-SS01-00-01-09C	7-SS01 IR17-SS01D-00-01-09C	IR17-SS02 IR17-SS02-00-01-09C	IR17-SS03 IR17-SS03-00-01-09C	IR17-SS04 IR17-SS04-00-01-09C	IR17-SS05 IR17-SS05-00-01-09C
Sample Date	07/10/09	07/10/09	07/10/09	07/10/09	07/10/09	07/10/09
Chemical Name						
Volatile Organic Compounds (µg/kg)						
1,1,1-Trichloroethane	6.5 UJ	3 UJ	4.6 UJ	5.4 UJ	5.2 R	4.8 UJ
1,1,2,2-Tetrachloroethane 1,1,2-Trichloro-1,2,2-trifluoroethane(Freon-113)	6.5 UJ 6.5 UJ	3 UJ 3 UJ	4.6 UJ 4.6 UJ	5.4 UJ 5.4 UJ	5.2 R 5.2 R	4.8 UJ 4.8 UJ
1,1,2-Trichloroethane	6.5 UJ	3 UJ	4.6 UJ	5.4 UJ	5.2 R	4.8 UJ
1,1-Dichloroethane 1,1-Dichloroethene	6.5 UJ 6.5 UJ	3 UJ 3 UJ	4.6 UJ 4.6 UJ	5.4 UJ 5.4 UJ	5.2 R 5.2 R	4.8 UJ 4.8 UJ
1,2,4-Trichlorobenzene	6.5 UJ	3 UJ	4.6 UJ	5.4 UJ	5.2 R	4.8 UJ
1,2-Dibromo-3-chloropropane	6.5 UJ	3 UJ	4.6 UJ	5.4 UJ	5.2 R	4.8 UJ
1,2-Dibromoethane 1,2-Dichlorobenzene	6.5 UJ 6.5 UJ	3 UJ 3 UJ	4.6 UJ 4.6 UJ	5.4 UJ 5.4 UJ	5.2 R 5.2 R	4.8 UJ 4.8 UJ
1,2-Dichloroethane	6.5 UJ	3 UJ	4.6 UJ	5.4 UJ	5.2 R	4.8 UJ
1,2-Dichloropropane 1,3-Dichlorobenzene	6.5 UJ 6.5 UJ	3 UJ 3 UJ	4.6 UJ 4.6 UJ	5.4 UJ 5.4 UJ	5.2 R 5.2 R	4.8 UJ 4.8 UJ
1,4-Dichlorobenzene	6.5 UJ	3 UJ	4.6 UJ	5.4 UJ	5.2 R	4.8 UJ
2-Butanone 2-Hexanone	14 J 13 UJ	4.9 J 6.1 UJ	5.1 J 9.2 UJ	11 UJ 11 UJ	23 J 10 R	2.8 J 9.7 UJ
4-Methyl-2-pentanone	13 UJ	6.1 UJ	9.2 UJ	11 UJ	10 R	9.7 UJ
Acetone	680 J 6.5 UJ	200 J 3 UJ	70 J 4.6 UJ	11 UJ 5.4 UJ	900 J 5.2 R	72 J 4.8 UJ
Benzene Bromodichloromethane	6.5 UJ	3 UJ	4.6 UJ	5.4 UJ	5.2 R 5.2 R	4.8 UJ
Bromoform	6.5 UJ	3 UJ	4.6 UJ	5.4 UJ	5.2 R	4.8 UJ
Bromomethane Carbon disulfide	13 R 6.5 UJ	6.1 R 3 UJ	9.2 UJ 4.6 UJ	11 UJ 5.4 UJ	10 R 5.2 R	9.7 UJ 4.8 UJ
Carbon tetrachloride	6.5 UJ	3 UJ	4.6 UJ	5.4 UJ	5.2 R	4.8 UJ
Chlorobenzene Chloroethane	6.5 UJ 13 UJ	3 UJ 6.1 UJ	4.6 UJ 9.2 UJ	5.4 UJ 11 UJ	5.2 R 10 R	4.8 UJ 9.7 UJ
Chloroform	6.5 UJ	3 UJ	13 J	5.4 UJ	5.2 R	4.8 UJ
Chloromethane cis-1,2-Dichloroethene	6.5 J 6.5 UJ	2.8 J 3 UJ	9.2 UJ 4.6 UJ	11 UJ 5.4 UJ	10 R 5.2 R	9.7 UJ 4.8 UJ
cis-1,3-Dichloropropene	6.5 UJ	3 UJ	4.6 UJ	5.4 UJ	5.2 R	4.8 UJ
Cyclohexane	6.5 UJ 6.5 UJ	3 UJ 3 UJ	4.6 UJ 4.6 UJ	5.4 UJ 5.4 UJ	5.2 R 5.2 R	4.8 UJ 4.8 UJ
Dibromochloromethane Dichlorodifluoromethane (Freon-12)	6.5 UJ	3 UJ	4.6 UJ	5.4 UJ 5.4 UJ	5.2 R 5.2 R	4.8 UJ 4.8 UJ
Ethylbenzene	6.5 UJ	3 UJ	4.6 UJ	5.4 UJ	5.2 R	4.8 UJ
Isopropylbenzene Methyl acetate	6.5 UJ 6.5 UJ	3 UJ 3 UJ	4.6 UJ 4.3 J	5.4 UJ 3.6 J	5.2 R 70 J	4.8 UJ 7 J
Methylcyclohexane	6.5 UJ	3 UJ	4.6 UJ	5.4 UJ	5.2 R	4.8 UJ
Methylene chloride Methyl-tert-butyl ether (MTBE)	13 UJ 6.5 UJ	6.1 UJ 3 UJ	9.2 UJ 4.6 UJ	11 UJ 5.4 UJ	10 R 5.2 R	9.7 UJ 4.8 UJ
Styrene	6.5 UJ	3 UJ	4.6 UJ	5.4 UJ	5.2 R	4.8 UJ
Tetrachloroethene Toluene	6.5 UJ 6.5 UJ	3 UJ 3 UJ	4.6 UJ 4.6 UJ	5.4 UJ 5.4 UJ	5.2 R 5.2 R	4.8 UJ 4.8 UJ
trans-1,2-Dichloroethene	6.5 UJ	3 UJ	4.6 UJ	5.4 UJ	5.2 R	4.8 UJ
trans-1,3-Dichloropropene	6.5 UJ	3 UJ	4.6 UJ	5.4 UJ	5.2 R	4.8 UJ
Trichloroethene Trichlorofluoromethane(Freon-11)	6.5 UJ 6.5 UJ	3 UJ 3 UJ	4.6 UJ 4.6 UJ	5.4 UJ 5.4 UJ	5.2 R 5.2 R	4.8 UJ 4.8 UJ
Vinyl chloride Xylene, total	13 UJ 6.5 UJ	6.1 UJ 3 UJ	9.2 UJ 4.6 UJ	11 UJ 5.4 UJ	10 R 5.2 R	9.7 UJ 4.8 UJ
Ayrene, total	6.5 03	3 03	4.6 UJ	5.4 UJ	5.2 K	4.6 UJ
Semivolatile Organic Compounds (μg/kg)						
1,1-Biphenyl 2,2'-Oxybis(1-chloropropane)	240 U 240 U	240 U 240 U	180 U 180 U	180 U 180 U	180 U 180 U	180 U 180 U
2,4,5-Trichlorophenol	240 U	240 U	180 U	180 U	180 U	180 U
2,4-Dichlorophenol 2,4-Dimethylphenol	240 U 240 U	240 U 240 U	180 U 180 U	180 U 180 U	180 U 180 U	180 U 180 U
2,4-Dinitrophenol	240 U	240 U	180 U	180 U	180 U	180 U
2,4-Dinitrotoluene 2,6-Dinitrotoluene	240 U 240 U	240 U 240 U	180 U 180 U	180 U 180 U	180 U 180 U	180 U 180 U
2-Chloronaphthalene	240 U	240 U	180 U	180 U	180 U	180 U
2-Chlorophenol	240 U 240 U	240 U 240 U	180 U 180 U	180 U 180 U	180 U 180 U	180 U 180 U
2-Methylnaphthalene 2-Methylphenol	240 U 240 U	240 U 240 U	180 U 180 U	180 U	180 U 180 U	180 U
2-Nitroaniline	240 U	240 U	180 U	180 U	180 U	180 U
2-Nitrophenol 3,3'-Dichlorobenzidine	240 U 240 UJ	240 U 240 UJ	180 U 180 U	180 U 180 U	180 U 180 U	180 U 180 U
3-Nitroaniline	240 U	240 U	180 U	180 U	180 U	180 U
4,6-Dinitro-2-methylphenol 4-Bromophenyl-phenylether	240 U 240 U	240 U 240 U	180 U 180 U	180 U 180 U	180 U 180 U	180 U 180 U
4-Chloro-3-methylphenol	240 U	240 U	180 U	180 U	180 U	180 U
4-Chloroaniline 4-Chlorophenyl-phenylether	240 U 240 U	240 U 240 U	180 U 180 U	180 U 180 U	180 U 180 U	180 U 180 U
4-Methylphenol	240 U	240 U	180 U	180 U	180 U	180 U
4-Nitroaniline 4-Nitrophenol	240 U 240 U	240 U 240 U	180 U 180 U	180 U 180 U	180 U 180 U	180 U 180 U
Acenaphthene	240 U	240 U	180 U	180 U	180 U	180 U
Acenaphthylene	240 U 240 U	240 U	180 U 180 U	180 U	180 U 180 U	180 U 180 U
Acetophenone Anthracene	240 U 240 U	240 U 240 U	180 U	180 U 180 U	180 U 180 U	180 U
Atrazine	240 U	240 U	180 U	180 U	180 U	180 U
Benzaldehyde Benzo(a)anthracene	240 U 49 U	240 U 47 U	180 U 36 U	180 U 36 U	180 U 35 U	180 U 35 U
Benzo(a)pyrene	49 U	47 U	36 U	36 U	35 U	35 U
Benzo(b)fluoranthene Benzo(g,h,i)perylene	49 U 240 U	47 U 240 U	36 U 180 U	36 U 180 U	35 U 180 U	35 U 180 U
Benzo(k)fluoranthene	240 U	240 U	180 U	180 U	180 U	180 U
bis(2-Chloroethoxy)methane	240 U	240 U	180 U	180 U	180 U	180 U
bis(2-Chloroethyl)ether bis(2-Ethylhexyl)phthalate	240 U 96 J	240 U 240 U	180 U 180 U	180 U 180 U	180 U 180 U	180 U 180 U
Butylbenzylphthalate	240 U	240 U	180 U	180 U	180 U	180 U
Caprolactam Carbazole	240 U 240 U	240 U 240 U	180 U 180 U	180 U 180 U	180 U 180 U	180 U 180 U
Chrysene	240 U	240 U	180 U	180 U	180 U	180 U
Dibenz(a,h)anthracene	49 U	47 U	36 U	36 U	35 U	35 U

CTO-11 Camp Lejeune - Site 17 Validated Surface Soil Raw Analytical Results July 2009

[]			1			
Station ID		7-SS01	IR17-SS02	IR17-SS03	IR17-SS04	IR17-SS05
Sample ID	IR17-SS01-00-01-09C	IR17-SS01D-00-01-09C	IR17-SS02-00-01-09C	IR17-SS03-00-01-09C	IR17-SS04-00-01-09C	IR17-SS05-00-01-09C
Sample Date	07/10/09	07/10/09	07/10/09	07/10/09	07/10/09	07/10/09
Chemical Name						
Dibenzofuran	240 U	240 U	180 U	180 U	180 U	180 U
Diethylphthalate	240 U	240 U	180 U	180 U	180 U	180 U
Dimethyl phthalate	240 U	240 U	180 U	180 U	180 U	180 U
Di-n-butylphthalate	93 J	240 U	180 U	180 U	180 U	180 U
Di-n-octylphthalate	240 UJ	240 UJ	180 U	180 U	180 U	180 U
Fluoranthene	240 U	240 U	180 U	180 U	180 U	180 U
Fluorene	240 U	240 U	180 U	180 U	180 U	180 U
Hexachlorobenzene Hexachlorobutadiene	240 U 240 U	240 U 240 U	180 U 180 U	180 U 180 U	180 U 180 U	180 U 180 U
Hexachlorocyclopentadiene	240 U	240 U	180 U	180 U	180 U	180 U
Hexachloroethane	240 U	240 U	180 U	180 U	180 U	180 U
Indeno(1,2,3-cd)pyrene	49 U	47 U	36 U	36 U	35 U	35 U
Isophorone	49 U	47 U	36 U	36 U	35 U	35 U
Naphthalene	240 U	240 U	180 U	180 U	180 U	180 U
n-Nitroso-di-n-propylamine	49 U	47 U	36 U	36 U	35 U	35 U
n-Nitrosodiphenylamine	240 U	240 U	180 U	180 U	180 U	180 U
Nitrobenzene	240 U	240 U	180 U	180 U	180 U	180 U
Pentachlorophenol	240 U	240 U	180 U	180 U	180 U	180 U
Phenanthrene	240 U	240 U	180 U	180 U	180 U	180 U
Phenol	240 U	240 U	180 U	180 U	180 U	180 U
Pyrene	240 U	240 U	180 UJ	180 U	180 UJ	180 U
	270 0	270 0	100 00	100 0	100 00	100 0
Pesticide/Polychlorinated Biphenyls (µg/kg)						
4,4'-DDD	2.5 U	2.4 U	1.8 U	1.8 U	1.8 U	1.7 U
4,4'-DDE	0.63 J	0.6 J	1.1 J	1.8 UJ	0.83 J	2.2 J
4,4'-DDT	2.5 UJ	2.4 UJ	1.9 J	1.8 UJ	1 J	0.9 J
Aldrin	2.5 U	2.4 U	1.8 UJ	1.8 UJ	1.8 UJ	1.7 UJ
alpha-BHC	2.5 U	2.4 U	1.8 UJ	1.8 UJ	1.8 UJ	1.7 UJ
alpha-Chlordane	2.5 U	2.4 U	1.8 UJ	1.8 UJ	1.8 UJ	1.7 UJ
Aroclor-1016	24 U	24 U	17 U	17 U	17 U	17 U
Aroclor-1221	24 U	24 U	17 U	17 U	17 U	17 U
Aroclor-1232	24 U	24 U	17 U	17 U	17 U	17 U
Aroclor-1242	24 U	24 U	17 U	17 U	17 U	17 U
Aroclor-1248	24 U	24 U	17 U	17 U	17 U	17 U
Aroclor-1254	24 U	24 U	17 U	17 U	17 U	17 U
Aroclor-1260	24 U	24 U	17 U	17 U	17 U	17 U
beta-BHC	2.5 U	2.4 U	1.8 UJ	1.8 UJ	1.8 UJ	1.7 UJ
delta-BHC	2.5 U	2.4 U	1.8 UJ	1.8 UJ	1.8 UJ	1.7 UJ
Dieldrin	2.5 U	2.4 U	1.8 UJ	1.8 UJ	1.8 UJ	1.7 UJ
Endosulfan I	2.5 U	2.4 U	1.8 UJ	1.8 UJ	1.8 UJ	1.7 UJ
Endosulfan II	2.5 U	2.4 U	1.8 UJ	1.8 UJ	1.8 UJ	1.7 UJ
Endosulfan sulfate	2.5 U	2.4 U	1.8 UJ	1.8 UJ	1.8 UJ	1.7 UJ
Endrin	2.5 U	2.4 U	1.8 UJ	1.8 UJ	1.8 UJ	1.7 UJ
Endrin aldehyde	2.5 U	2.4 U	1.8 UJ	1.8 UJ	1.8 UJ	1.7 UJ
Endrin ketone	2.5 UJ	2.4 UJ	1.8 UJ	1.8 UJ	1.8 UJ	1.7 UJ
gamma-BHC (Lindane)	2.5 U	2.4 U	1.8 UJ	1.8 UJ	1.8 UJ	1.7 UJ
gamma-Chlordane	2.5 U	2.4 U	1.8 UJ	1.8 UJ	1.8 UJ	1.7 UJ
Heptachlor	2.5 U	2.4 U	1.8 UJ	1.8 UJ	1.8 UJ	1.7 UJ
Heptachlor epoxide	2.5 U	2.4 U	1.8 UJ	1.8 UJ	1.8 UJ	1.7 UJ
Methoxychlor Toyonhone	2.5 UJ	2.4 UJ	1.8 UJ	1.8 UJ	1.8 UJ	1.7 UJ
Toxaphene	49 U	48 U	36 UJ	36 UJ	35 UJ	35 UJ
Total Motals (malka)						
Total Metals (mg/kg) Aluminum	7.580 J+	7,110 J+	7,320	5,150	5,810	5,520
Antimony	7,580 J+ 2.1 U	7,110 J+ 2 U	7,320 1.5 UJ	5,150 1.5 UJ	5,810 1.5 UJ	5,520 1.5 UJ
Arsenic	4.9	3.3	1.3 J	1.9	1.8	1.5 03 1.1 J
Barium	16.1	19.2	21.3	12.7	14.8	14.9
Beryllium	0.21 U	0.2 U	0.16	0.15 U	0.14 J	0.14 J
Cadmium	0.64 U	0.61 U	0.02 J	0.15 U	0.14 J	0.46 U
Calcium	356	372	91.5	210	92.5	181
Chromium	8.3	7.5	3.8	3.7	3.3	2.7
Cobalt	0.54 U	0.51 U	0.29 J	0.21 J	0.33 J	0.31 J
Copper	1 J	0.95 J	0.92 J	0.7 J	0.81 J	0.93 J
Iron	7,640	5,230	2,190	1,800	1,670	1,880
Lead	17.1	13.9	7.5	9.3	8.7	9.3
Magnesium	667	646	221	178	186	132
Manganese	9.1	8.2	9.3	8.7	10.8	5.9
Mercury	0.052	0.045 U	0.033 U	0.042	0.033 U	0.033 U
Nickel	1.5	1.2	2	1.4	1.5	1.4
Potassium	495	461	134	119	116	113
Selenium	0.69 J	0.57 J	1.5 U	1.5 U	1.5 U	1.5 U
Silver	0.4 J	0.16 J	1.5 U	1.5 U	1.5 U	1.5 U
Sodium	1,840	1,870	30.8 J	188 U	13.5 J	13.1 J
Thallium	3.2 U	3 U	2.3 U	2.3 U	2.2 U	2.3 U
Vanadium	20.8	15.9	6.8	6.2	6.2	5.8
Zinc	5.4 U	5.1 U	5.2	4.3	4.3	5.2
Wet Chemistry pH (ph)	4.2	4.2	4.7	4.6	4.9	4.3

- Notes:

 Shading indicates detections

 NA Not analyzed

 J Analyte present, value may or may not be accurate or precise

 J+ Analyte present, value may be biased high, actual value may be lower

 R Unreliable Result

 U The material was analyzed for, but not detected

 UJ Analyte not detected, quantitation limit may be inaccurate

 mg/kg Milligrams per kilogram

 ph pH units

 µg/kg Micrograms per kilogram

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Station ID	IR17-SB01	IR17-SB02	IR17	-SB03	IR17-SB04	IR17-SB05
Sample ID	IR17-SB01-2-4-09C	IR17-SB02-2-7-09C	IR17-SB03-2-7-09C	IR17-SB03D-2-7-09C	IR17-SB04-2-7-09C	IR17-SB05-2-7-09C
Sample Date	07/27/09	07/28/09	07/28/09	07/28/09	07/28/09	07/28/09
Chemical Name						
Volatile Organic Compounds (µg/kg)						
1,1,1-Trichloroethane	2.2 UJ	1.4 U	2 UJ	1.8 UJ	1.7 UJ	1.8 UJ
1,1,2,2-Tetrachloroethane 1,1,2-Trichloro-1,2,2-trifluoroethane(Freon-113)	2.2 UJ 2.2 UJ	1.4 U 1.4 U	2 UJ 2 UJ	1.8 UJ 1.8 UJ	1.7 UJ 1.7 UJ	1.8 UJ 1.8 UJ
1,1,2-Trichloroethane	2.2 UJ	1.4 U	2 UJ	1.8 UJ	1.7 UJ	1.8 UJ
1,1-Dichloroethane	2.2 UJ	1.4 U	2 UJ	1.8 UJ	1.7 UJ	1.8 UJ
1,1-Dichloroethene	2.2 UJ	1.4 U	2 UJ	1.8 UJ	1.7 UJ	1.8 UJ
1,2,4-Trichlorobenzene	1.1 J	1.4 U	2 UJ	1.8 R	1.7 UJ	1.8 UJ
1,2-Dibromo-3-chloropropane	1.6 J	1.4 U	2 UJ	1.8 R	1.7 UJ	1.8 UJ
1,2-Dibromoethane	2.2 UJ	1.4 U	2 UJ	1.8 UJ	1.7 UJ	1.8 UJ
1,2-Dichlorobenzene	2.2 UJ	1.4 U	2 UJ	1.8 R	1.7 UJ	1.8 UJ
1,2-Dichloroethane	2.2 UJ	1.4 U	2 UJ	1.8 UJ	1.7 UJ	1.8 UJ
1,2-Dichloropropane 1,3-Dichlorobenzene	2.2 UJ 2.2 UJ	1.4 U 1.4 U	2 UJ 2 UJ	1.8 UJ 1.8 UJ	1.7 UJ 1.7 UJ	1.8 UJ 1.8 UJ
1,4-Dichlorobenzene	2.2 UJ	1.4 U	2 UJ	1.8 UJ	1.7 UJ	1.8 UJ
2-Butanone	1.4 J	2.9 U	2.6 J	1.3 J	3.3 UJ	3.5 UJ
2-Hexanone	4.4 UJ	2.9 U	3.9 UJ	3.5 UJ	3.3 UJ	3.5 UJ
4-Methyl-2-pentanone	4.4 UJ	2.9 U	3.9 UJ	3.5 UJ	3.3 UJ	3.5 UJ
Acetone	70 J	2.9 U	99 J	41 J	3.3 UJ	3.5 UJ
Benzene	2.2 UJ	1.4 U	2 UJ	1.8 UJ	1.7 UJ	1.8 UJ
Bromodichloromethane	2.2 UJ	1.4 U	2 UJ	1.8 UJ	1.7 UJ	1.8 UJ
Bromoform	2.2 UJ	1.4 U	2 UJ	1.8 UJ	1.7 UJ	1.8 UJ
Bromomethane Carbon disulfide	4.4 UJ 2.2 UJ	2.9 UJ 1.4 U	3.9 UJ 2 UJ	3.5 UJ 1.8 UJ	3.3 UJ 1.7 UJ	3.5 UJ 1.8 UJ
Carbon disulfide Carbon tetrachloride	2.2 UJ	1.4 U	2 UJ	1.8 UJ	1.7 UJ	1.8 UJ
Chlorobenzene	2.2 UJ	1.4 U	2 UJ	1.8 UJ	1.7 UJ	1.8 UJ
Chloroethane	4.4 UJ	2.9 U	3.9 UJ	3.5 UJ	3.3 UJ	3.5 UJ
Chloroform	4.9 J	2.3	2 UJ	1.8 UJ	1.7 UJ	1.8 UJ
Chloromethane	4.4 UJ	2.9 U	3.9 UJ	3.5 UJ	3.3 UJ	3.5 UJ
cis-1,2-Dichloroethene	2.2 UJ	1.4 U	2 UJ	1.8 UJ	1.7 UJ	1.8 UJ
cis-1,3-Dichloropropene	2.2 UJ	1.4 U	2 UJ	1.8 UJ	1.7 UJ	1.8 UJ
Cyclohexane	2.2 UJ 2.2 UJ	1.4 U 1.4 U	2 UJ 2 UJ	1.8 UJ 1.8 UJ	1.7 UJ 1.7 UJ	1.8 UJ
Dibromochloromethane Dichlorodifluoromethane (Freon-12)	2.2 UJ	1.4 U	2 UJ	1.8 UJ	1.7 UJ	1.8 UJ 1.8 UJ
Ethylbenzene	2.2 UJ	1.4 U	2 UJ	1.8 UJ	1.7 UJ	1.8 UJ
Isopropylbenzene	2.2 UJ	1.4 U	2 UJ	1.8 UJ	1.7 UJ	1.8 UJ
Methyl acetate	1.3 J	1.4 U	96 J	13 J	5.1 J	1.3 J
Methylcyclohexane	2.2 UJ	1.4 U	2 UJ	1.8 UJ	1.7 UJ	1.8 UJ
Methylene chloride	2.2 UJ	1.4 U	1.5 J	1.8 UJ	3.3 UJ	1.8 UJ
Methyl-tert-butyl ether (MTBE)	2.2 UJ	1.4 U	2 UJ	1.8 UJ	1.7 UJ	1.8 UJ
Styrene	2.2 UJ	1.4 U	2 UJ	1.8 UJ	1.7 UJ	1.8 UJ
Tetrachloroethene Toluene	2.2 UJ 2.2 UJ	1.4 U 1.4 U	2 UJ 2 UJ	1.8 UJ 1.8 UJ	1.7 UJ 1.7 UJ	1.8 UJ 1.8 UJ
trans-1,2-Dichloroethene	2.2 UJ	1.4 U	2 UJ	1.8 UJ	1.7 UJ	1.8 UJ
trans-1,3-Dichloropropene	2.2 UJ	1.4 U	2 UJ	1.8 UJ	1.7 UJ	1.8 UJ
Trichloroethene	2.2 UJ	1.4 U	2 UJ	1.8 UJ	1.7 UJ	1.8 UJ
Trichlorofluoromethane(Freon-11)	2.2 UJ	1.4 U	2 UJ	1.8 UJ	1.7 UJ	1.8 UJ
Vinyl chloride	4.4 R	2.9 UJ	3.9 R	3.5 UJ	3.3 UJ	3.5 UJ
Xylene, total	2.2 UJ	1.4 UJ	2 UJ	1.8 UJ	1.7 UJ	1.8 UJ
Saminalatila Ormania Carron de (a fi a)						
Semivolatile Organic Compounds (µg/kg)	210 U	200 11	210 U	220 U	190 U	190 U
1,1-Biphenyl 2,2'-Oxybis(1-chloropropane)	210 U	200 U 200 U	210 U	220 U	190 U	190 U
2,4,5-Trichlorophenol	210 U	200 U	210 U	220 U	190 U	190 U
2,4-Dichlorophenol	210 U	200 U	210 U	220 U	190 U	190 U
2,4-Dimethylphenol	210 U	200 U	210 U	220 U	190 U	190 U
2,4-Dinitrophenol	210 UJ	200 UJ	210 UJ	220 UJ	190 UJ	190 UJ
2,4-Dinitrotoluene	210 U	200 U	210 U	220 U	190 U	190 U
2,6-Dinitrotoluene	210 U	200 U	210 U	220 U	190 U	190 U
2-Chloronaphthalene 2-Chlorophenol	210 U 210 U	200 U 200 U	210 U 210 U	220 U 220 U	190 U 190 U	190 U 190 U
2-Methylnaphthalene	210 U	200 U	210 U	220 U	190 U	190 U
2-Methylphenol	210 U	200 U	210 U	220 U	190 U	190 U
2-Nitroaniline	210 U	200 U	210 U	220 U	190 U	190 U
2-Nitrophenol	210 U	200 U	210 U	220 U	190 U	190 U
3,3'-Dichlorobenzidine	210 UJ	200 UJ	210 UJ	220 UJ	190 UJ	190 UJ
3-Nitroaniline	210 U	200 U	210 U	220 U	190 U	190 U
4,6-Dinitro-2-methylphenol	210 UJ	200 UJ	210 UJ	220 UJ	190 UJ	190 UJ
4-Bromophenyl-phenylether	210 U	200 U	210 U	220 U	190 U	190 U
4-Chloro-3-methylphenol 4-Chloroaniline	210 U 210 U	200 U 200 U	210 U 210 U	220 U 220 U	190 U 190 U	190 U 190 U
4-Chlorophenyl-phenylether	210 U	200 U	210 U	220 U	190 U	190 U
4-Methylphenol	210 U	200 U	210 U	220 U	190 U	190 U
4-Nitroaniline	210 UJ	200 UJ	210 UJ	220 UJ	190 UJ	190 UJ
4-Nitrophenol	210 UJ	200 UJ	210 UJ	220 UJ	190 UJ	190 UJ
Acenaphthene	210 U	200 U	210 U	220 U	190 U	190 U
Acenaphthylene	210 U	200 U	210 U	220 U	190 U	190 U
Acetophenone	210 U	200 U	210 U	220 U	190 U	190 U

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Station ID	IR17-SB01	IR17-SB02	ID17	-SB03	IR17-SB04	IR17-SB05
Sample ID	IR17-SB01-2-4-09C	IR17-SB02-2-7-09C	IR17-SB03-2-7-09C	IR17-SB03D-2-7-09C	IR17-SB04-	IR17-SB05-2-7-09C
Sample Date	07/27/09	07/28/09	07/28/09	07/28/09	07/28/09	07/28/09
Chemical Name						
Anthracene	210 U	200 U	210 U	220 U	190 U	190 U
Atrazine	210 UJ	200 UJ	210 UJ	220 UJ	190 UJ	190 UJ
Benzaldehyde	210 R	200 R	210 R	220 R	190 R	190 R
Benzo(a)anthracene	42 U	40 U 40 U	43 U	44 U 44 U	37 U	38 U
Benzo(a)pyrene Benzo(b)fluoranthene	42 U 42 U	40 U	43 U 43 U	44 U	37 U 37 U	38 U 38 U
Benzo(g,h,i)perylene	210 U	200 U	210 U	220 U	190 U	190 U
Benzo(k)fluoranthene	210 U	200 U	210 U	220 U	190 U	190 U
bis(2-Chloroethoxy)methane	210 U	200 U	210 U	220 U	190 U	190 U
bis(2-Chloroethyl)ether	210 U	200 U	210 U	220 U	190 U	190 U
bis(2-Ethylhexyl)phthalate	210 U	200 U	210 U	220 U	190 U	190 U
Butylbenzylphthalate	210 U	200 U	210 U	220 U	190 U	190 U
Caprolactam Carbazole	210 U 210 U	200 U 200 U	210 U 210 U	220 U 220 U	190 U 190 U	190 U 190 U
Chrysene	210 U	200 U	210 U	220 U	190 U	190 U
Dibenz(a,h)anthracene	42 U	40 U	43 U	44 U	37 U	38 U
Dibenzofuran	210 U	200 U	210 U	220 U	190 U	190 U
Diethylphthalate	210 U	200 U	210 U	220 U	190 U	190 U
Dimethyl phthalate	210 U	200 U	210 U	220 U	190 U	190 U
Di-n-butylphthalate	210 U	200 U	210 U	220 U	190 U	190 U
Di-n-octylphthalate	210 U	200 U	210 U	220 U	190 U	190 U
Fluoranthene Fluorene	210 U 210 U	200 U 200 U	210 U 210 U	220 U 220 U	190 U 190 U	190 U 190 U
Hexachlorobenzene	210 U	200 U	210 U	220 U	190 U	190 U
Hexachlorobetizette Hexachlorobutadiene	210 U	200 U	210 U	220 U	190 U	190 U
Hexachlorocyclopentadiene	210 U	200 U	210 U	220 U	190 U	190 U
Hexachloroethane	210 U	200 U	210 U	220 U	190 U	190 U
Indeno(1,2,3-cd)pyrene	42 U	40 U	43 U	44 U	37 U	38 U
Isophorone	42 U	40 U	43 U	44 U	37 U	38 U
Naphthalene	210 U	200 U	210 U	220 U	190 U	190 U
n-Nitroso-di-n-propylamine n-Nitrosodiphenylamine	42 U 210 U	40 U 200 U	43 U 210 U	44 U 220 U	37 U 190 U	38 U 190 U
Nitrobenzene	210 U	200 U	210 U	220 U	190 U	190 U
Pentachlorophenol	210 U	200 U	210 U	220 U	190 U	190 U
Phenanthrene	210 U	200 U	210 U	220 U	190 U	190 U
Phenol	210 U	200 U	210 U	220 U	190 U	190 U
Pyrene	210 U	200 U	210 U	220 U	190 U	190 U
Pesticide/Polychlorinated Biphenyls (µg/kg) 4,4'-DDD	1.7 U	1.7 U	4711	4711	1.7 U	1.7 U
4,4'-DDE	1.7 U	1.7 U	1.7 U 1.7 U	1.7 U 1.7 U	1.7 U	0.41 J
4,4'-DDT	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U
Aldrin	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U
alpha-BHC	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U
alpha-Chlordane	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U
Aroclor-1016	21 U	20 U	21 U	22 U	19 U	19 U
Aroclor-1221	21 U	20 U	21 U	22 U	19 U	19 U
Aroclor-1232 Aroclor-1242	21 U 21 U	20 U 20 U	21 U 21 U	22 U 22 U	19 U 19 U	19 U 19 U
Aroclor-1248	21 U	20 U	21 U	22 U	19 U	19 U
Aroclor-1254	21 U	20 U	21 U	22 U	19 U	19 U
Aroclor-1260	21 U	20 U	21 U	22 U	19 U	19 U
beta-BHC	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U
delta-BHC	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U
Dieldrin	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U
Endosulfan I Endosulfan II	1.7 U 1.7 U	1.7 U 1.7 U	1.7 U 1.7 U	1.7 U 1.7 U	1.7 U 1.7 U	1.7 U 1.7 U
Endosulfan II Endosulfan sulfate	1.7 U	1.7 U 1.7 U	1.7 U	1.7 U	1.7 U	1.7 U
Endrin	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U
Endrin aldehyde	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U
Endrin ketone	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U
gamma-BHC (Lindane)	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U
gamma-Chlordane	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U
Heptachlor	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U
Heptachlor epoxide Methoxychlor	1.7 U 1.7 U	1.7 U 1.7 U	1.7 U 1.7 U	1.7 U 1.7 U	1.7 U 1.7 U	1.7 U 1.7 U
Toxaphene	33 U	33 U	33 U	33 U	33 U	33 U
Total Metals (mg/kg)	33.0			00.0	00.0	00.0
Aluminum	17,400	4,520	20,000	17,700	5,270	7,900
Antimony	0.93 J	1.7 U	1.8 U	1.8 U	1.6 U	1.6 U
Arsenic	7.2	1.3 J	13	14.6	0.95 J	2.5
Barium	18.9	9.7	21.8	20	6.6	19.5
Beryllium	0.21	0.057 J	0.31	0.28	0.055 J	0.15 J
Cadmium	0.54 U	0.51 U	0.53 U	0.55 U	0.47 U	0.48 U
Calcium Chromium	90 U 27.4	84.6 U 4.7	89.1 U 35.8	92 U 34.1	227 5.6	97.3 7.4
Cobalt	0.59	4.7 0.28 J	35.8	34.1	0.26 J	7.4 0.65
Copper	3.5	0.66 J	5	4.2	0.86 J	1.5 J

CTO-11 Camp Lejeune - Site 17 Validated Subsurface Soil Raw Analytical Results July 2009

Station ID	IR17-SB01	IR17-SB02	IR17	-SB03	IR17-SB04	IR17-SB05
Sample ID	IR17-SB01-2-4-09C	IR17-SB02-2-7-09C	IR17-SB03-2-7-09C	IR17-SB03D-2-7-09C	IR17-SB04-2-7-09C	IR17-SB05-2-7-09C
Sample Date	07/27/09	07/28/09	07/28/09	07/28/09	07/28/09	07/28/09
Chemical Name						
Iron	16,400	2,240	19,600	28,400	2,500	6,230
Lead	10.7	5.2	15.4	15.9	3.3	6.7
Magnesium	791	179	1,020	836	184	284
Manganese	10.8	8.7	12.1	13.3	5.4	11.4
Mercury	0.039 U	0.036 U	0.04 U	0.041 U	0.033 U	0.049
Nickel	2.1	1.3	2.7	2.5	1.2	1.9
Potassium	943	145	1,070	833	155	225
Selenium	1.8 U	1.7 U	1.2 J	1.4 J	1.6 U	1.6 U
Silver	1.8 U	1.7 U	1.8 U	1.8 U	1.6 U	1.6 U
Sodium	230	22.6 J	106 J	81.9 J	5.3 J	21 J
Thallium	2.7 U	2.5 U	2.7 U	2.8 U	2.4 U	2.4 U
Vanadium	37.6	7	49.4	70.4	7.4	13.2
Zinc	7.5	3.1 J	8.9	8.9	2.4 J	6.3
Wet Chemistry						
pH (ph)	3.8	4.6	4.4	4.3	4.7	NA

Notes: Shading indicates detections NA - Not analyzed

J. - Analyte present, value may or may not be accurate or precise
 R - Unreliable Result

R - Unreliable Result
U - The material was analyzed for, but not detected
UJ - Analyte not detected, quantitation limit may be
inaccurate
mg/kg - Milligrams per kilogram

ph - pH units

μg/kg - Micrograms per kilogram

CTO-11 Camp Lejeune - Site 17 Validated Groundwater Raw Analytical Results July 2009

Station ID	IR17-TW01	IR17	'-TW02
Sample ID	IR17-TW01-09C	IR17-TW02-09C	IR17-TW02D-09C
Sample Date	07/29/09	07/29/09	07/29/09
Chemical Name			
Volatile Organic Compounds (μg/l)			
1,1,1-Trichloroethane	1 U	1 UJ	1 UJ
1,1,2,2-Tetrachloroethane	2.4 U	1 U	1 U
1,1,2-Trichloro-1,2,2-trifluoroethane(Freon-113)	1 U	1 U	1 U
1,1,2-Trichloroethane	1 U	1 U	1 U
1,1-Dichloroethane 1,1-Dichloroethene	1 U	1 U	1 U 1 U
1,2,4-Trichlorobenzene	1 U	1 U	1 U
1,2-Dibromo-3-chloropropane	2 R	2 U	2 U
1,2-Dibromoethane	1 U	1 U	1 U
1,2-Dichlorobenzene	1 U	1 U	1 U
1,2-Dichloroethane 1,2-Dichloropropane	1 U	1 U 1 U	1 U
1,3-Dichlorobenzene	1 U	1 U	1 U
1,4-Dichlorobenzene	1 U	1 U	1 U
2-Butanone	5 U	5 U	5 U
2-Hexanone	5 U	5 UJ	5 UJ
4-Methyl-2-pentanone Acetone	5 U 5 U	5 U 5 UJ	5 U 5 UJ
Acetone Benzene	1 U	5 UJ 1 U	5 UJ
Bromodichloromethane	1 U	1 U	1 U
Bromoform	1 U	1 U	1 U
Bromomethane	1.1 U	1 U	1 U
Carbon disulfide Carbon tetrachloride	1 U	1 U 1 U	1 U
Carbon tetrachionde Chlorobenzene	1 U	1 U	1 U
Chloroethane	1 UJ	1 U	1 U
Chloroform	4.4	1 U	1 U
Chloromethane	1 UJ	1 UJ	1 UJ
cis-1,2-Dichloroethene	1 U	1 U	1 U
cis-1,3-Dichloropropene Cyclohexane	1 U	1 U	1 U
Dibromochloromethane	1 U	1 U	1 U
Dichlorodifluoromethane (Freon-12)	1 UJ	1 UJ	1 UJ
Ethylbenzene	1 U	1 U	1 U
Isopropylbenzene	1 U	1 UJ 1 U	1 UJ 1 U
Methyl acetate Methylcyclohexane	1 U	1 U	1 U
Methylene chloride	1 U	1 U	1 U
Methyl-tert-butyl ether (MTBE)	1 U	1 UJ	1 UJ
Styrene	1 U	1 U	1 U
Tetrachloroethene Toluene	1.1 U 1 U	1 U	1 U
trans-1,2-Dichloroethene	1 U	1 U	1 U
trans-1,3-Dichloropropene	1 U	1 U	1 U
Trichloroethene	5.1 U	1 U	1 U
Trichlorofluoromethane(Freon-11) Vinyl chloride	1 UJ 1 U	1 UJ 1 U	1 UJ 1 U
Xylene, total	1.2 U	1 U	1 U
,,	1 0		
Semivolatile Organic Compounds (μg/l)			
1,1-Biphenyl	10 U	10 U	10 U
2,2'-Oxybis(1-chloropropane) 2,4,5-Trichlorophenol	10 U 10 U	10 U 10 U	10 U 10 U
2,4-Dichlorophenol	10 U	10 U	10 U
2,4-Dimethylphenol	10 U	10 U	10 U
2,4-Dinitrophenol	20 U	20 U	20 U
2,4-Dinitrotoluene	10 U	10 U	10 U
2,6-Dinitrotoluene 2-Chloronaphthalene	10 U 10 U	10 U 10 U	10 U
2-Chlorophenol	10 U	10 U	10 U
2-Methylnaphthalene	10 U	10 U	10 U
2-Methylphenol	10 U	10 U	10 U
2-Nitroaniline	10 U	10 U	10 U
2-Nitrophenol 3,3'-Dichlorobenzidine	10 U 20 UJ	10 U 20 UJ	10 U 20 UJ
3-Nitroaniline	10 U	10 U	10 U
4,6-Dinitro-2-methylphenol	20 U	20 U	20 U
4-Bromophenyl-phenylether	10 U	10 U	10 U
4-Chloro-3-methylphenol	10 U	10 U	10 U
4-Chloroaniline 4-Chlorophenyl-phenylether	10 U 10 U	10 U 10 U	10 U 10 U
4-Methylphenol	20 U	20 U	20 U
4-Nitroaniline	10 U	10 U	10 U
4-Nitrophenol	20 U	20 U	20 U
Acenaphthulana	10 U	10 U	10 U
Acenaphthylene Acetophenone	10 U 10 U	10 U 10 U	10 U 10 U
, toctop for for for	100	10 0	100

CTO-11 Camp Lejeune - Site 17 Validated Groundwater Raw Analytical Results July 2009

Station ID	IR17-TW01	IR17	7-TW02
Sample ID	IR17-TW01-09C		IR17-TW02D-09C
Sample Date	07/29/09	07/29/09	07/29/09
Chemical Name	i		
Anthracene	10 U	10 U	10 U
Atrazine	20 U	20 U	20 U
Benzaldehyde	10 R	10 R	10 R
Benzo(a)anthracene Benzo(a)pyrene	10 U 10 U	10 U 10 U	10 U
Benzo(b)fluoranthene	10 U	10 U	10 U
Benzo(g,h,i)perylene	10 U	10 U	10 U
Benzo(k)fluoranthene	10 U	10 U	10 U
bis(2-Chloroethoxy)methane	10 U	10 U	10 U
bis(2-Chloroethyl)ether	10 U	10 U	10 U
bis(2-Ethylhexyl)phthalate Butylbenzylphthalate	10 U 10 U	10 U 10 U	10 U
Caprolactam	4.5 J	10 U	10 U
Carbazole	10 U	10 U	10 U
Chrysene	10 U	10 U	10 U
Dibenz(a,h)anthracene	10 U	10 U	10 U
Dibenzofuran	10 U	10 U	10 U
Diethylphthalate Dimethyl phthalate	10 U 10 U	10 U 10 U	10 U 10 U
Di-n-butylphthalate	20 U	20 U	20 U
Di-n-octylphthalate	10 U	10 U	10 U
Fluoranthene	10 U	10 U	10 U
Fluorene	10 U	10 U	10 U
Hexachlorobenzene	10 U	10 U	10 U
Hexachlorobutadiene Hexachlorocyclopentadiene	10 U 10 U	10 U 10 U	10 U
Hexachlorocyclopentadiene Hexachloroethane	10 U	10 U	10 U
Indeno(1,2,3-cd)pyrene	10 U	10 U	10 U
Isophorone	10 U	10 U	10 U
Naphthalene	10 U	10 U	10 U
n-Nitroso-di-n-propylamine	10 U	10 U	10 U
n-Nitrosodiphenylamine Nitrobenzene	10 U 10 U	10 U 10 U	10 U 10 U
Pentachlorophenol	20 U	20 U	20 U
Phenanthrene	10 U	10 U	10 U
Phenol	10 U	10 U	10 U
Pyrene	10 U	10 U	10 U
Pesticide/Polychlorinated Biphenyls (µg/l) 4,4'-DDD	0.05 U	0.05 U	0.05 U
4,4'-DDE	0.05 U	0.05 U	0.05 U
4,4'-DDT	0.05 U	0.05 U	0.05 U
Aldrin	0.05 U	0.05 U	0.05 U
alpha-BHC alpha-Chlordane	0.05 U 0.05 U	0.05 U 0.05 U	0.05 U 0.05 U
Aroclor-1016	0.5 U	0.5 U	0.5 U
Aroclor-1221	0.5 U	0.5 U	0.5 U
Aroclor-1232	0.5 U	0.5 U	0.5 U
Aroclor-1242	0.5 U	0.5 U	0.5 U
Aroclor-1248 Aroclor-1254	0.5 U 0.5 U	0.5 U 0.5 U	0.5 U 0.5 U
Aroclor-1254 Aroclor-1260	0.5 U	0.5 U	0.5 U
beta-BHC	0.05 U	0.05 U	0.05 U
delta-BHC	0.05 U	0.05 U	0.05 U
Dieldrin	0.05 U	0.05 U	0.05 U
Endosulfan I	0.05 U	0.05 U	0.05 U
Endosulfan II Endosulfan sulfate	0.05 U 0.05 U	0.05 U 0.05 U	0.05 U 0.05 U
Endrin	0.05 U	0.05 U	0.05 U
Endrin aldehyde	0.05 U	0.05 U	0.05 U
Endrin ketone	0.05 U	0.05 U	0.05 U
gamma-BHC (Lindane)	0.05 U	0.05 U	0.05 U
gamma-Chlordane	0.05 U	0.05 U	0.05 U
Heptachlor Heptachlor epoxide	0.05 U 0.05 U	0.05 U 0.05 U	0.05 U 0.05 U
Methoxychlor	0.05 U	0.05 U	0.05 U
Toxaphene	1 U	1 U	1 U
Total Metals (μg/l)			
Aluminum	1,680	621 J	1,260
Antimony	20 U	20 U	20 U
Arsenic Barium	20 U 474	20 U 8 J	20 U 9.2 J
Beryllium	2 U	0.12 J	9.2 J 0.16 J
Cadmium	6 U	6 U	6 U
Calcium	111,000	911 J	893 J
Chromium	1.8 J	20 U	20 U
Cobalt	5 U	5 U	5 U
Copper	20 U	20 U	20 U

CTO-11 Camp Lejeune - Site 17 Validated Groundwater Raw Analytical Results July 2009

Station ID	IR17-TW01	IR17	-TW02
Sample ID	IR17-TW01-09C	IR17-TW02-09C	IR17-TW02D-09C
Sample Date	07/29/09	07/29/09	07/29/09
Chemical Name			
Iron	2,590	814	1,170
Lead	3.2 J	20 U	3.2 J
Magnesium	57,300	466	537
Manganese	57.5	16.9	17.7
Mercury	0.25	0.2 U	0.2 U
Nickel	13.8	10 U	10 U
Potassium	8,250	1,010	1,070
Selenium	20 U	3.9 J	4.2 J
Silver	20 U	20 U	20 U
Sodium	499,000	7,220	7,470
Thallium	30 U	30 U	30 U
Vanadium	50 U	50 U	50 U
Zinc	10.2 J	5.7 J	4.9 J
Dissolved Metals (μg/l)			
Aluminum, Dissolved	567 J	1,000 U	1,000 U
Antimony, Dissolved	20 U	20 U	20 U
Arsenic, Dissolved	20 U	20 U	20 U
Barium, Dissolved	498	5.1 J	4.5 J
Beryllium, Dissolved	2 U	0.1 J	2 U
Cadmium, Dissolved	6 U	6 U	6 U
Calcium, Dissolved	110,000	612 J	609 J
Chromium, Dissolved	20 U	20 U	20 U
Cobalt, Dissolved	5 U	5 U	5 U
Copper, Dissolved	3.8 J	20 U	20 U
Iron, Dissolved	2,760	309	296
Lead, Dissolved	2.6 J	20 U	20 U
Magnesium, Dissolved	59,200	263	266
Manganese, Dissolved	64.6	13	11
Mercury, Dissolved	0.2 U	0.2 U	0.2 U
Nickel, Dissolved	15.9	10 U	10 U
Potassium, Dissolved	8,580	1,060	1,040
Selenium, Dissolved	20 U	20 U	4.2 J
Silver, Dissolved	20 U	20 U	20 U
Sodium, Dissolved	510,000	7,650	7,810
Thallium, Dissolved	30 U	30 U	30 U
Vanadium, Dissolved	50 U	50 U	50 U
Zinc, Dissolved	14.7 J	7.9 J	5.2 J

- Notes:

 Shading indicates detections

 NA Not analyzed

 J Analyte present, value may or may not be accurate or precise

 R Unreliable Result

 U The material was analyzed for, but not detected

 UJ Analyte not detected, quantitation limit may be inaccurate

 µg/l Micrograms per liter

CTO-11 Camp Lejeune - Site 85 Validated Groundwater Detected Analytical Results July 2009

Station ID	IR85-BAT	IR85-SS06	IR85-SS07	IR85-SS08	IRR	5-SS09	IR85-SS10	IR85-SS11	IR85-SS12	IR85-SS13	IR85.	-SS14	IR85-SS15	IR85-SS16	IR85-SS17	IR85-SS18
Sample ID	IR85-BAT-071009	IR85-SS06-00-01-09C	IR85-SS07-00-01-09C	IR85-SS08-00-01-09C	IR85-SS09-00-01-09C	IR85-SS09D-00-01-09C	IR85-SS10-00-01-09C		IR85-SS12-00-01-09C	IR85-SS13-00-01-09C		IR85-SS14D-00-01-09C	IR85-SS15-00-01-09C	IR85-SS16-00-01-09C	IR85-SS17-00-01-09C	IR85-SS18-00-01-09C
Sample Date	07/10/09	07/09/09	07/09/09	07/09/09	07/10/09	07/10/09	07/10/09	07/10/09	07/10/09	07/10/09	07/10/09	07/10/09	07/10/09	07/10/09	07/10/09	07/10/09
Chemical Name																
Volatile Organic Compounds (μg/kg)																
1,1,1-Trichloroethane	NA	5 UJ	4.9 UJ	4.7 UJ	6.1 UJ	6.1 UJ	3.6 R	6.2 R	4.7 UJ	4.9 UJ	5.3 UJ	5.4 UJ	4.3 UJ	6.2 UJ	9.5 UJ	5.4 R
1,1,2,2-Tetrachloroethane	NA NA	5 UJ	4.9 UJ	4.7 UJ	6.1 UJ	6.1 UJ	3.6 R	6.2 R	4.7 UJ	4.9 UJ	5.3 UJ	5.4 UJ	4.3 UJ	6.2 UJ	9.5 UJ	5.4 R
1,1,2-Trichloro-1,2,2-trifluoroethane(Freon-113) 1,1,2-Trichloroethane	NA NA	5 UJ 5 UJ	4.9 UJ 4.9 UJ	4.7 UJ 4.7 UJ	6.1 UJ 6.1 UJ	6.1 UJ 6.1 UJ	3.6 R 3.6 R	6.2 R 6.2 R	4.7 UJ 4.7 UJ	4.9 UJ 4.9 UJ	5.3 UJ 5.3 UJ	5.4 UJ 5.4 UJ	4.3 UJ 4.3 UJ	6.2 UJ 6.2 UJ	9.5 UJ 9.5 UJ	5.4 R 5.4 R
1,1-Dichloroethane	NA	5 UJ	4.9 UJ	4.7 UJ	6.1 UJ	6.1 UJ	3.6 R	6.2 R	4.7 UJ	4.9 UJ	5.3 UJ	5.4 UJ	4.3 UJ	6.2 UJ	9.5 UJ	5.4 R
1,1-Dichloroethene	NA NA	5 UJ	4.9 UJ	4.7 UJ	6.1 UJ	6.1 UJ	3.6 R	6.2 R	4.7 UJ	4.9 UJ	5.3 UJ	5.4 UJ	4.3 UJ	6.2 UJ	9.5 UJ	5.4 R
1,2,4-Trichlorobenzene 1,2-Dibromo-3-chloropropane	NA NA	5 UJ 5 UJ	4.9 UJ 4.9 UJ	4.7 UJ 4.7 UJ	6.1 UJ 6.1 UJ	6.1 UJ 6.1 UJ	3.6 R 3.6 R	6.2 R 6.2 R	4.7 UJ 4.7 UJ	4.9 UJ 4.9 UJ	5.3 UJ 5.3 UJ	5.4 UJ 5.4 UJ	4.3 UJ 4.3 UJ	6.2 UJ 6.2 UJ	9.5 UJ 9.5 UJ	5.4 R 5.4 R
1,2-Dibromoethane	NA	5 UJ	4.9 UJ	4.7 UJ	6.1 UJ	6.1 UJ	3.6 R	6.2 R	4.7 UJ	4.9 UJ	5.3 UJ	5.4 UJ	4.3 UJ	6.2 UJ	9.5 UJ	5.4 R
1,2-Dichlorobenzene	NA NA	5 UJ	4.9 UJ	4.7 UJ	6.1 UJ	6.1 UJ	3.6 R	6.2 R	4.7 UJ	4.9 UJ	5.3 UJ	5.4 UJ	4.3 UJ	6.2 UJ	9.5 UJ	5.4 R
1,2-Dichloroethane 1,2-Dichloropropane	NA NA	5 UJ 5 UJ	4.9 UJ 4.9 UJ	4.7 UJ 4.7 UJ	6.1 UJ 6.1 UJ	6.1 UJ 6.1 UJ	3.6 R 3.6 R	6.2 R 6.2 R	4.7 UJ 4.7 UJ	4.9 UJ 4.9 UJ	5.3 UJ 5.3 UJ	5.4 UJ 5.4 UJ	4.3 UJ 4.3 UJ	6.2 UJ 6.2 UJ	9.5 UJ 9.5 UJ	5.4 R 5.4 R
1,3-Dichlorobenzene	NA	5 UJ	4.9 UJ	4.7 UJ	6.1 UJ	6.1 UJ	3.6 R	6.2 R	4.7 UJ	4.9 UJ	5.3 UJ	5.4 UJ	4.3 UJ	6.2 UJ	9.5 UJ	5.4 R
1,4-Dichlorobenzene	NA NA	5 UJ 7.8 J	4.9 UJ	4.7 UJ	6.1 UJ	6.1 UJ 6.6 J	3.6 R	6.2 R 12 R	4.7 UJ 7.3 J	4.9 UJ 6.9 J	5.3 UJ 14 J	5.4 UJ	4.3 UJ	6.2 UJ	9.5 UJ	5.4 R
2-Butanone 2-Hexanone	NA NA	7.8 J 10 UJ	9.7 UJ 9.7 UJ	9.5 UJ 9.5 UJ	12 UJ 12 UJ	12 UJ	4.9 R 7.3 R	12 R	9.3 UJ	9.7 UJ	14 J 11 UJ	27 J 11 UJ	8.6 UJ 8.6 UJ	13 UJ 13 UJ	19 UJ 19 UJ	11 R 11 R
4-Methyl-2-pentanone	NA	10 UJ	9.7 UJ	9.5 UJ	12 UJ	12 UJ	7.3 R	12 R	9.3 UJ	9.7 UJ	11 UJ	11 UJ	8.6 UJ	13 UJ	19 UJ	11 R
Acetone	NA NA	250 J	85 J	65 J	1,300 J	280 J	75 R	320 J	130 J	110 J	270 J	420 J	38 J	40 J	360 J	72 J
Benzene Bromodichloromethane	NA NA	5 UJ 5 UJ	4.9 UJ 4.9 UJ	4.7 UJ 4.7 UJ	6.1 UJ 6.1 UJ	6.1 UJ 6.1 UJ	3.6 R 3.6 R	6.2 R 6.2 R	4.7 UJ 4.7 UJ	4.9 UJ 4.9 UJ	5.3 UJ 5.3 UJ	5.4 UJ 5.4 UJ	4.3 UJ 4.3 UJ	6.2 UJ 6.2 UJ	9.5 UJ 9.5 UJ	5.4 R 5.4 R
Bromoform	NA	5 UJ	4.9 UJ	4.7 UJ	6.1 UJ	6.1 UJ	3.6 R	6.2 R	4.7 UJ	4.9 UJ	5.3 UJ	5.4 UJ	4.3 UJ	6.2 UJ	9.5 UJ	5.4 R
Bromomethane	NA NA	10 UJ	9.7 UJ	9.5 UJ	12 UJ	12 UJ	7.3 R	12 R	9.3 UJ	9.7 UJ	11 UJ	11 UJ	8.6 UJ	13 UJ	19 UJ	11 R
Carbon disulfide Carbon tetrachloride	NA NA	5 UJ 5 UJ	4.9 UJ 4.9 UJ	4.7 UJ 4.7 UJ	6.1 UJ 6.1 UJ	6.1 UJ 6.1 UJ	3.6 R 3.6 R	6.2 R 6.2 R	4.7 UJ 4.7 UJ	4.9 UJ 4.9 UJ	5.3 UJ 5.3 UJ	5.4 UJ 5.4 UJ	4.3 UJ 4.3 UJ	6.2 UJ 6.2 UJ	9.5 UJ 9.5 UJ	5.4 R 5.4 R
Chlorobenzene	NA	5 UJ	4.9 UJ	4.7 UJ	6.1 UJ	6.1 UJ	3.6 R	6.2 R	4.7 UJ	4.9 UJ	5.3 UJ	5.4 UJ	4.3 UJ	6.2 UJ	9.5 UJ	5.4 R
Chloroethane	NA NA	10 UJ	9.7 UJ	9.5 UJ	12 UJ	12 UJ	7.3 R	12 R	9.3 UJ	9.7 UJ	11 UJ	11 UJ	8.6 UJ	13 UJ	19 UJ	11 R
Chloroform Chloromethane	NA NA	5 UJ 10 UJ	4.9 UJ 9.7 UJ	4.7 UJ 9.5 UJ	6.1 UJ 12 UJ	6.1 UJ 12 UJ	3.6 R 7.3 R	6.2 R 12 R	4.7 UJ 9.3 UJ	4.9 UJ 9.7 UJ	5.3 UJ 11 UJ	5.4 UJ 11 UJ	4.3 UJ 8.6 UJ	6.2 UJ 13 UJ	9.5 UJ 19 UJ	5.4 R 11 R
cis-1,2-Dichloroethene	NA	5 UJ	4.9 UJ	4.7 UJ	6.1 UJ	6.1 UJ	3.6 R	6.2 R	4.7 UJ	4.9 UJ	5.3 UJ	5.4 UJ	4.3 UJ	6.2 UJ	9.5 UJ	5.4 R
cis-1,3-Dichloropropene	NA NA	5 UJ	4.9 UJ	4.7 UJ	6.1 UJ	6.1 UJ	3.6 R	6.2 R	4.7 UJ	4.9 UJ	5.3 UJ	5.4 UJ	4.3 UJ	6.2 UJ	9.5 UJ	5.4 R
Cyclohexane Dibromochloromethane	NA NA	5 UJ 5 UJ	4.9 UJ 4.9 UJ	4.7 UJ 4.7 UJ	6.1 UJ 6.1 UJ	6.1 UJ 6.1 UJ	3.6 R 3.6 R	6.2 R 6.2 R	4.7 UJ 4.7 UJ	4.9 UJ 4.9 UJ	5.3 UJ 5.3 UJ	5.4 UJ 5.4 UJ	4.3 UJ 4.3 UJ	6.2 UJ 6.2 UJ	9.5 UJ 9.5 UJ	5.4 R 5.4 R
Dichlorodifluoromethane (Freon-12)	NA	5 UJ	4.9 UJ	4.7 UJ	6.1 UJ	6.1 UJ	3.6 R	6.2 R	4.7 UJ	4.9 UJ	5.3 UJ	5.4 UJ	4.3 UJ	6.2 UJ	9.5 UJ	5.4 R
Ethylbenzene	NA NA	5 UJ	4.9 UJ	4.7 UJ	6.1 UJ	6.1 UJ	3.6 R	6.2 R	4.7 UJ	4.9 UJ	5.3 UJ	5.4 UJ	4.3 UJ	6.2 UJ	9.5 UJ	5.4 R
Isopropylbenzene Methyl acetate	NA NA	5 UJ 12 J	4.9 UJ 3.8 J	4.7 UJ 8 J	6.1 UJ 84 J	6.1 UJ 18 J	3.6 R 15 R	6.2 R 6.2 R	4.7 UJ 20 J	4.9 UJ 12 J	5.3 UJ 12 J	5.4 UJ 26 J	4.3 UJ 5.7 J	6.2 UJ 11 J	9.5 UJ 200 J	5.4 R 5.4 R
Methylcyclohexane	NA	5 UJ	4.9 UJ	4.7 UJ	6.1 UJ	6.1 UJ	3.6 R	6.2 R	4.7 UJ	4.9 UJ	5.3 UJ	5.4 UJ	4.3 UJ	6.2 UJ	9.5 UJ	5.4 R
Methylene chloride	NA NA	10 UJ 5 UJ	9.7 UJ 4.9 UJ	9.5 UJ 4.7 UJ	12 UJ 6.1 UJ	12 UJ 6.1 UJ	7.3 R 3.6 R	12 R 6.2 R	9.3 UJ 4.7 UJ	9.7 UJ 4.9 UJ	11 UJ 5.3 UJ	11 UJ 5.4 UJ	8.6 UJ 4.3 UJ	13 UJ 6.2 UJ	14 J 9.5 UJ	11 R 5.4 R
Methyl-tert-butyl ether (MTBE) Styrene	NA NA	5 UJ	4.9 UJ	4.7 UJ	6.1 UJ	6.1 UJ	3.6 R	6.2 R	4.7 UJ	4.9 UJ	5.3 UJ	5.4 UJ	4.3 UJ	6.2 UJ	9.5 UJ	5.4 R
Tetrachloroethene	NA	5 UJ	4.9 UJ	4.7 UJ	6.1 UJ	6.1 UJ	3.6 R	6.2 R	4.7 UJ	4.9 UJ	5.3 UJ	5.4 UJ	4.3 UJ	6.2 UJ	9.5 UJ	5.4 R
Toluene trans-1,2-Dichloroethene	NA NA	5 UJ 5 UJ	4.9 UJ 4.9 UJ	4.7 UJ 4.7 UJ	6.1 UJ 6.1 UJ	6.1 UJ 6.1 UJ	3.6 R 3.6 R	6.2 R 6.2 R	4.7 UJ 4.7 UJ	4.9 UJ 4.9 UJ	5.3 UJ 5.3 UJ	5.4 UJ 5.4 UJ	4.3 UJ 4.3 UJ	6.2 UJ 6.2 UJ	9.5 UJ 9.5 UJ	5.4 R 5.4 R
trans-1,3-Dichloropropene	NA NA	5 UJ	4.9 UJ	4.7 UJ	6.1 UJ	6.1 UJ	3.6 R	6.2 R	4.7 UJ	4.9 UJ	5.3 UJ	5.4 UJ	4.3 UJ	6.2 UJ	9.5 UJ	5.4 R
Trichloroethene	NA	5 UJ	4.9 UJ	4.7 UJ	6.1 UJ	6.1 UJ	3.6 R	6.2 R	4.7 UJ	4.9 UJ	5.3 UJ	5.4 UJ	4.3 UJ	6.2 UJ	9.5 UJ	5.4 R
Trichlorofluoromethane(Freon-11) Vinyl chloride	NA NA	5 UJ 10 UJ	4.9 UJ 9.7 UJ	4.7 UJ 9.5 UJ	6.1 UJ 12 UJ	6.1 UJ 12 UJ	3.6 R 7.3 R	6.2 R 12 R	4.7 UJ 9.3 UJ	4.9 UJ 9.7 UJ	5.3 UJ 11 UJ	5.4 UJ 11 UJ	4.3 UJ 8.6 UJ	6.2 UJ 13 UJ	9.5 UJ 19 UJ	5.4 R 11 R
Xylene, total	NA NA	5 UJ	4.9 UJ	4.7 UJ	6.1 UJ	6.1 UJ	3.6 R	6.2 R	4.7 UJ	4.9 UJ	5.3 UJ	5.4 UJ	4.3 UJ	6.2 UJ	9.5 UJ	5.4 R
Semivolatile Organic Compounds (µg/kg) 1,1-Biphenyl	NA	190 U	180 U	190 U	180 U	180 U	180 U	180 UJ	180 U	190 U	190 U	190 U	190 U	190 U	230 U	220 U
2,2'-Oxybis(1-chloropropane)	NA NA	190 U	180 U	190 U	180 U	180 U	180 U	180 UJ	180 U	190 U	190 U	190 U	190 U	190 U	230 U	220 U
2,4,5-Trichlorophenol	NA	190 U	180 U	190 U	180 U	180 U	180 U	180 UJ	180 U	190 U	190 U	190 U	190 U	190 U	230 U	220 U
2,4-Dichlorophenol 2,4-Dimethylphenol	NA NA	190 U 190 U	180 U 180 U	190 U 190 U	180 U 180 U	180 U 180 U	180 U 180 U	180 UJ 180 UJ	180 U 180 U	190 U 190 U	190 U 190 U	190 U 190 U	190 U 190 U	190 U 190 U	230 U 230 U	220 U 220 U
2,4-Dinitrophenol	NA NA	190 U	180 U	190 U	180 U	180 U	180 U	180 UJ	180 U	190 U	190 U	190 U	190 U	190 U	230 U	220 U
2,4-Dinitrotoluene	NA	190 U	180 U	190 U	180 U	180 U	180 U	180 UJ	180 U	190 U	190 U	190 U	190 U	190 U	230 U	220 U
2,6-Dinitrotoluene	NA NA	190 U	180 U	190 U 190 U	180 U	180 U	180 U 180 UJ	180 UJ	180 U	190 U	190 U	190 U	190 U	190 U	230 U	220 U
2-Chloronaphthalene 2-Chlorophenol	NA NA	190 U 190 U	180 U 180 U	190 U	180 U 180 U	180 U 180 U	180 UJ 180 U	180 UJ 180 UJ	180 U 180 U	190 U 190 U	190 U 190 U	190 U 190 U	190 U 190 U	190 U 190 U	230 U 230 U	220 U 220 U
2-Methylnaphthalene	NA	190 U	180 U	190 U	180 U	180 U	180 U	180 UJ	180 U	190 U	190 U	190 U	190 U	190 U	230 U	220 U
2-Methylphenol 2-Nitroaniline	NA NA	190 U 190 U	180 U 180 U	190 U 190 U	180 U 180 U	180 U 180 U	180 U 180 U	180 UJ 180 UJ	180 U 180 U	190 U 190 U	190 U 190 U	190 U 190 U	190 U 190 U	190 U 190 U	230 U 230 U	220 U 220 U
2-Nitroaniline 2-Nitrophenol	NA NA	190 U	180 U	190 U	180 U	180 U	180 U	180 UJ	180 U	190 U	190 U	190 U	190 U	190 U	230 U	220 U
3,3'-Dichlorobenzidine	NA	190 UJ	180 UJ	190 UJ	180 UJ	180 UJ	180 UJ	180 UJ	180 UJ	190 UJ	190 UJ	190 UJ	190 UJ	190 UJ	230 UJ	220 UJ
3-Nitroaniline	NA NA	190 U 190 U	180 U	190 U	180 U	180 U	180 U	180 UJ	180 U	190 U	190 U	190 U	190 U	190 U	230 U	220 U
4,6-Dinitro-2-methylphenol 4-Bromophenyl-phenylether	NA NA	190 U 190 U	180 U 180 U	190 U 190 U	180 U 180 U	180 U 180 U	180 U 180 U	180 UJ 180 UJ	180 U 180 U	190 U 190 U	190 U 190 U	190 U 190 U	190 U 190 U	190 U 190 U	230 U 230 U	220 U 220 U
4-Chloro-3-methylphenol	NA	190 U	180 U	190 U	180 U	180 U	180 U	180 UJ	180 U	190 U	190 U	190 U	190 U	190 U	230 U	220 U
4-Chloroaniline	NA NA	190 U	180 U	190 U	180 U	180 U	180 U	180 UJ	180 U	190 U	190 U	190 U	190 U	190 U	230 U	220 U
4-Chlorophenyl-phenylether 4-Methylphenol	NA NA	190 U 190 U	180 U 180 U	190 U 190 U	180 U 180 U	180 U 180 U	180 U 180 U	180 UJ 180 UJ	180 U 180 U	190 U 190 U	190 U 190 U	190 U 190 U	190 U 190 U	190 U 190 U	230 U 230 U	220 U 220 U
4-Nitroaniline	NA	190 U	180 U	190 U	180 U	180 U	180 U	180 UJ	180 U	190 U	190 U	190 U	190 U	190 U	230 U	220 U
4-Nitrophenol	NA	190 U	180 U	190 U	180 U	180 U	180 U	180 UJ	180 U	190 U	190 U	190 U	190 U	190 U	230 U	220 U
Acenaphthene Acenaphthylene	NA NA	190 U 190 U	180 U 180 U	190 U 190 U	180 U 180 U	180 U 180 U	180 U 180 U	180 UJ 180 UJ	180 U 180 U	190 U 190 U	190 U 190 U	190 U 190 U	190 U 190 U	190 U 190 U	230 U 230 U	220 U 220 U
Acetophenone	NA NA	190 U	180 U	190 U	180 U	180 U	180 U	180 UJ	180 U	190 U	190 U	190 U	190 U	190 U	230 U	220 U

CTO-11 Camp Lejeune - Site 85 Validated Groundwater Detected Analytical Results July 2009

Station ID	IR85-BAT	IR85-SS06	IR85-SS07	IR85-SS08	IDea	5-SS09	IR85-SS10	IR85-SS11	IR85-SS12	IR85-SS13	IDOE	SS14	IR85-SS15	IR85-SS16	IR85-SS17	IR85-SS18
Sample ID	IR85-BAT IR85-BAT-071009	IR85-SS06 IR85-SS06-00-01-09C	IR85-SS07 IR85-SS07-00-01-09C	IR85-SS08-00-01-09C	IR85-SS09-00-01-09C	IR85-SS09D-00-01-09C	IR85-SS10-00-01-09C	IR85-SS11 IR85-SS11-00-01-09C	IR85-SS12-00-01-09C	IR85-SS13-00-01-09C		IR85-SS14D-00-01-09C		IR85-SS16-00-01-09C	IR85-SS17-00-01-09C	IR85-SS18 IR85-SS18-00-01-09C
Sample Date	07/10/09	07/09/09	07/09/09	07/09/09	07/10/09	07/10/09	07/10/09	07/10/09	07/10/09	07/10/09	07/10/09	07/10/09	07/10/09	07/10/09	07/10/09	07/10/09
Chemical Name																
Anthracene	NA	190 U	180 U	190 U	180 U	180 U	180 U	180 UJ	180 U	190 U	190 U	190 U	190 U	190 U	230 U	220 U
Atrazine	NA	190 U	180 U	190 U	180 U	180 U	180 U	180 UJ	180 U	190 U	190 U	190 U	190 U	190 U	230 U	220 U
Benzaldehyde	NA NA	190 U	180 U	190 U	180 UJ	180 U	180 U	180 UJ	180 UJ	190 UJ	190 UJ	190 UJ	190 UJ	190 UJ	230 UJ	220 U
Benzo(a)anthracene Benzo(a)pyrene	NA NA	37 U 37 U	36 U 36 U	38 U 38 U	36 U 36 U	36 U 36 U	36 U 36 U	36 UJ 36 UJ	37 U 37 U	38 U 38 U	37 U 37 U	38 U 38 U	39 U 39 U	38 U 38 U	47 U 47 U	43 U 43 U
Benzo(b)fluoranthene	NA NA	37 U	36 U	38 U	36 U	36 U	36 U	36 UJ	37 U	38 U	37 U	38 U	39 U	38 U	47 U	43 U
Benzo(g,h,i)perylene	NA	190 U	180 U	190 U	180 U	180 U	180 UJ	180 UJ	180 U	190 U	190 U	190 U	190 U	190 U	230 U	220 U
Benzo(k)fluoranthene	NA	190 U	180 U	190 U	180 U	180 U	180 UJ	180 UJ	180 U	190 U	190 U	190 U	190 U	190 U	230 U	220 U
bis(2-Chloroethoxy)methane	NA NA	190 U	180 U	190 U	180 U	180 U	180 UJ	180 UJ	180 U	190 U	190 U	190 U	190 U	190 U	230 U 230 U	220 U 220 U
bis(2-Chloroethyl)ether bis(2-Ethylhexyl)phthalate	NA NA	190 U 140 J	180 U 180 U	190 U 190 U	180 U 58 J	180 U 180 U	180 U 180 U	180 UJ 180 UJ	180 U 180 U	190 U 190 U	190 U 190 U	190 U 190 U	190 U 29 J	190 U 190 U	230 U	220 U
Butylbenzylphthalate	NA NA	190 U	180 U	190 U	180 U	180 U	180 U	180 UJ	180 U	190 U	190 U	190 U	190 U	190 U	230 U	220 U
Caprolactam	NA	190 U	180 U	190 U	180 U	180 U	180 U	180 UJ	180 U	190 U	190 U	190 U	190 U	190 U	230 U	220 U
Carbazole	NA	190 U	180 U	190 U	180 U	180 U	180 U	180 UJ	180 U	190 U	190 U	190 U	190 U	190 U	230 U	220 U
Chrysene	NA NA	190 U	180 U	190 U	180 U	180 U	180 U	180 UJ	180 U	190 U	190 U	190 U	190 U	190 U	230 U	220 U
Dibenz(a,h)anthracene Dibenzofuran	NA NA	37 U 190 U	36 U 180 U	38 U 190 U	36 U 180 U	36 U 180 U	36 U 180 U	36 UJ 180 UJ	37 U 180 U	38 U 190 U	37 U 190 U	38 U 190 U	39 U 190 U	38 U 190 U	47 U 230 U	43 U 220 U
Diethylphthalate	NA NA	190 U	180 U	190 U	180 U	180 U	180 U	180 UJ	180 U	190 U	190 U	190 U	190 U	190 U	230 U	220 U
Dimethyl phthalate	NA	190 U	180 U	190 U	180 U	180 U	180 U	180 UJ	180 U	190 U	190 U	190 U	190 U	190 U	230 U	220 U
Di-n-butylphthalate	NA	190 U	180 U	190 U	180 U	180 U	180 U	180 UJ	180 U	190 U	190 U	190 U	190 U	190 U	230 U	220 U
Di-n-octylphthalate	NA NA	190 UJ	180 UJ	190 UJ	180 U	180 UJ	180 UJ	180 UJ	180 U	190 U	190 U	190 U	190 U	190 U	230 U	220 UJ
Fluoranthene Fluorene	NA NA	190 U 190 U	180 U 180 U	190 U 190 U	180 U 180 U	180 U 180 U	180 U 180 U	180 UJ 180 UJ	180 U 180 U	190 U 190 U	190 U 190 U	190 U 190 U	190 U 190 U	190 U 190 U	230 U 230 U	220 U 220 U
Hexachlorobenzene	NA NA	190 U	180 U	190 U	180 U	180 U	180 U	180 UJ	180 U	190 U	190 U	190 U	190 U	190 U	230 U	220 U
Hexachlorobutadiene	NA NA	190 U	180 U	190 U	180 U	180 U	180 U	180 UJ	180 U	190 U	190 U	190 U	190 U	190 U	230 U	220 U
Hexachlorocyclopentadiene	NA	190 U	180 U	190 U	180 U	180 U	180 U	180 UJ	180 U	190 U	190 U	190 U	190 U	190 U	230 U	220 R
Hexachloroethane	NA NA	190 U	180 U	190 U	180 U	180 U	180 U	180 UJ	180 U	190 U	190 U	190 U	190 U	190 U	230 U	220 U
Indeno(1,2,3-cd)pyrene Isophorone	NA NA	37 U 37 U	36 U 36 U	38 U 38 U	36 U 36 U	36 U 36 U	36 U 36 U	36 UJ 36 UJ	37 U 37 U	38 U 38 U	37 U 37 U	38 U 38 U	39 U 39 U	38 U 38 U	47 U 47 U	43 U 43 U
Naphthalene	NA NA	190 U	180 U	190 U	180 U	180 U	180 U	180 UJ	180 U	190 U	190 U	190 U	190 U	190 U	230 U	220 U
n-Nitroso-di-n-propylamine	NA	37 U	36 U	38 U	36 U	36 U	36 U	36 UJ	37 U	38 U	37 U	38 U	39 U	38 U	47 U	43 U
n-Nitrosodiphenylamine	NA	190 U	180 U	190 U	180 U	180 U	180 UJ	180 UJ	180 U	190 U	190 U	190 U	190 U	190 U	230 U	220 U
Nitrobenzene	NA	190 U	180 U	190 U	180 U	180 U	180 U	180 UJ	180 U	190 U	190 U	190 U	190 U	190 U	230 U	220 U
Pentachlorophenol Phenanthrene	NA NA	190 U 190 U	180 U 180 U	190 U 190 U	180 U 180 U	180 U 180 U	180 U 180 U	180 UJ 180 UJ	180 U 180 U	190 U 190 U	190 U 190 U	190 U 190 U	190 U 190 U	190 U 190 U	230 U 230 U	220 U 220 U
Phenol	NA NA	190 U	180 U	190 U	180 U	180 U	180 U	180 UJ	180 U	190 U	190 U	190 U	190 U	190 U	230 U	220 U
Pyrene	NA	190 U	180 U	190 U	180 UJ	180 U	180 U	180 UJ	180 UJ	190 UJ	190 U	190 U	190 U	190 UJ	230 U	220 U
Pesticide/Polychlorinated Biphenyls (µg/kg) 4,4'-DDD	NA	1.9 U	1.8 U	0.93 J	1.8 U	1.8 U	0.39 J	1.8 U	1.4 J	1.9 U	1.9 U	1.9 U	1.9 U	0.97 J	2.3 U	24.1
4,4'-DDE	NA NA	1.9 U	0.99 J	2.7	2.4 J	2.6 J	4.5	0.64 J	3 J	0.71 J	3.1 J	3 J	2.4 J	4.5 J	2.5 U	3.1 J 29 J
4,4'-DDT	NA NA	1.9 UJ	0.68 J	1.2 J	2.4 J	0.83 J	3 J	1.8 UJ	3.6 J	0.86 J	1.4 J	1.4 J	3 J	1.9 J	4 J	25 J
Aldrin	NA	1.9 U	1.8 U	1.9 U	1.8 UJ	1.8 U	1.8 U	1.8 U	1.8 UJ	1.9 UJ	1.9 UJ	1.9 UJ	1.9 UJ	1.9 UJ	2.3 UJ	2.2 UJ
alpha-BHC	NA	1.9 U	1.8 U	1.9 U	1.8 UJ	1.8 U	1.8 U	1.8 U	1.8 UJ	1.9 UJ	1.9 UJ	1.9 UJ	1.9 UJ	1.9 UJ	2.3 UJ	2.2 U
alpha-Chlordane Aroclor-1016	NA NA	1.9 U 19 U	1.8 U 18 U	1.9 U 19 U	1.8 UJ 17 U	1.8 U 18 U	1.8 U 18 U	1.8 U 18 U	1.8 UJ 17 U	1.9 UJ 17 U	1.9 UJ 17 U	1.9 UJ 17 U	1.9 UJ 19 U	1.9 UJ 17 U	2.3 UJ 23 U	2.2 UJ 22 U
Aroclor-1016 Aroclor-1221	NA NA	19 U	18 U	19 U	17 U	18 U	18 U	18 U	17 U	17 U	17 U	17 U	19 U			22 U
Aroclor-1232	NA			19 U							17 U			17 U		
Aroclor-1242	1	19 U	18 U	19 0	17 U	18 U	18 U	18 U	17 U	17 U	17 0	17 U	19 U	17 U 17 U	23 U 23 U	22 U
	NA	19 U	18 U	19 U	17 U	18 U	18 U	18 U	17 U	17 U	17 U	17 U	19 U	17 U 17 U	23 U 23 U 23 U	22 U
Aroclor-1248	NA	19 U 19 U	18 U 18 U	19 U 19 U	17 U 17 U	18 U 18 U	18 U 18 U	18 U 18 U	17 U 17 U	17 U 17 U	17 U 17 U	17 U 17 U	19 U 19 U	17 U 17 U 17 U	23 U 23 U 23 U 23 U	22 U 22 U
Aroclor-1254	NA NA	19 U 19 U 19 U	18 U 18 U 18 U	19 U 19 U 19 U	17 U 17 U 17 U	18 U 18 U 18 U	18 U 18 U 18 U	18 U 18 U 18 U	17 U 17 U 17 U	17 U 17 U 17 U	17 U 17 U 17 U	17 U 17 U 17 U	19 U 19 U 40 J	17 U 17 U 17 U 17 U	23 U 23 U 23 U 23 U 23 U 50	22 U 22 U 22 U
Aroclor-1254 Aroclor-1260	NA NA NA	19 U 19 U 19 U 19 U	18 U 18 U 18 U 18 U	19 U 19 U 19 U 19 U	17 U 17 U 17 U 17 U	18 U 18 U 18 U 18 U	18 U 18 U 18 U 18 U	18 U 18 U 18 U 18 U	17 U 17 U 17 U 17 U	17 U 17 U 17 U 17 U	17 U 17 U 17 U 17 U	17 U 17 U 17 U 17 U	19 U 19 U 40 J 19 U	17 U 17 U 17 U 17 U 17 U 17 U	23 U 23 U 23 U 23 U 23 U 50 23 U	22 U 22 U 22 U 22 U 22 U
Aroclor-1254	NA NA	19 U 19 U 19 U	18 U 18 U 18 U	19 U 19 U 19 U	17 U 17 U 17 U	18 U 18 U 18 U	18 U 18 U 18 U	18 U 18 U 18 U	17 U 17 U 17 U	17 U 17 U 17 U	17 U 17 U 17 U	17 U 17 U 17 U	19 U 19 U 40 J	17 U 17 U 17 U 17 U	23 U 23 U 23 U 23 U 23 U 50	22 U 22 U 22 U
Aroclor-1254 Aroclor-1260 beta-BHC delta-BHC Dieldrin	NA NA NA NA NA NA	19 U 19 U 19 U 19 U 1.9 U 1.9 U	18 U 18 U 18 U 18 U 1.8 U 1.8 U	19 U 19 U 19 U 19 U 1.9 U 1.9 U	17 U 17 U 17 U 17 U 18 UJ 1.8 UJ 1.8 UJ	18 U 18 U 18 U 18 U 1.8 U 1.8 U	18 U 18 U 18 U 18 U 1.8 U 1.8 U	18 U 18 U 18 U 18 U 1.8 U 1.8 U	17 U 17 U 17 U 17 U 18 UJ 1.8 UJ 1.8 UJ	17 U 17 U 17 U 17 U 17 U 1.9 UJ 1.9 UJ	17 U 17 U 17 U 17 U 1.9 UJ 1.9 UJ 1.9 UJ	17 U 17 U 17 U 17 U 17 U 1.9 UJ 1.9 UJ	19 U 19 U 40 J 19 U 1.9 UJ 1.9 UJ 1.9 UJ	17 U 17 U 17 U 17 U 17 U 1.9 UJ 1.9 UJ 1.9 UJ	23 U 23 U 23 U 23 U 23 U 50 23 U 2.3 UJ 2.3 UJ 2.9 UJ	22 U 22 U 22 U 22 U 22 U 2.2 UJ 2.2 UJ 2.2 U
Aroclor-1254 Aroclor-1260 beta-BHC delta-BHC Dieldrin Endosulfan I	NA NA NA NA NA NA	19 U 19 U 19 U 19 U 1.9 U 1.9 U 1.9 U 1.9 U	18 U 18 U 18 U 18 U 1.8 U 1.8 U 1.8 U	19 U 19 U 19 U 19 U 1.9 U 1.9 U 1.9 U 1.9 U	17 U 17 U 17 U 17 U 18 UJ 1.8 UJ 1.8 UJ 1.8 UJ	18 U 18 U 18 U 18 U 1.8 U 1.8 U 1.8 U	18 U 18 U 18 U 18 U 1.8 U 1.8 U 1.8 U 1.8 U	18 U 18 U 18 U 18 U 1.8 U 1.8 U 1.8 U	17 U 17 U 17 U 17 U 18 UJ 1.8 UJ 1.8 UJ 1.8 UJ	17 U 17 U 17 U 17 U 17 U 1.9 UJ 1.9 UJ 1.9 UJ	17 U 17 U 17 U 17 U 1.9 UJ 1.9 UJ 1.9 UJ	17 U 17 U 17 U 17 U 19 UJ 1.9 UJ 1.9 UJ 1.9 UJ	19 U 19 U 40 J 19 U 1.9 UJ 1.9 UJ 1.9 UJ 1.9 UJ	17 U 17 U 17 U 17 U 17 U 19 UJ 1.9 UJ 1.9 UJ 1.9 UJ	23 U 23 U 23 U 23 U 50 23 U 2.3 UJ 2.3 UJ 1.9 J 2.3 UJ	22 U 22 U 22 U 22 U 22 U 2.2 UJ 2.2 UJ 2.2 UJ 2.2 UJ 2.2 UJ
Aroclor-1254 Aroclor-1260 beta-BHC delta-BHC Dieldrin Endosulfan I Endosulfan II	NA	19 U 19 U 19 U 19 U 1.9 U 1.9 U 1.9 U 1.9 U	18 U 18 U 18 U 18 U 1.8 U 1.8 U 1.8 U 1.8 U	19 U 19 U 19 U 19 U 1.9 U 1.9 U 1.9 U 1.9 U	17 U 17 U 17 U 17 U 18 UJ 1.8 UJ 1.8 UJ 1.8 UJ 1.8 UJ	18 U 18 U 18 U 18 U 18 U 1.8 U 1.8 U 1.8 U 1.8 U	18 U 18 U 18 U 18 U 1.8 U 1.8 U 1.8 U 1.8 U	18 U 18 U 18 U 18 U 1.8 U 1.8 U 1.8 U 1.8 U	17 U 17 U 17 U 17 U 18 UJ 1.8 UJ 1.8 UJ 1.8 UJ 1.8 UJ	17 U 17 U 17 U 17 U 19 UJ 1.9 UJ 1.9 UJ 1.9 UJ 1.9 UJ	17 U 17 U 17 U 17 U 1.9 UJ 1.9 UJ 1.9 UJ 1.9 UJ 1.9 UJ	17 U 17 U 17 U 17 U 19 UJ 1.9 UJ 1.9 UJ 1.9 UJ 1.9 UJ	19 U 19 U 40 J 19 U 1.9 UJ 1.9 UJ 1.9 UJ 1.9 UJ 1.9 UJ	17 U 17 U 17 U 17 U 17 U 17 U 1.9 UJ 1.9 UJ 1.9 UJ 1.9 UJ	23 U 23 U 23 U 23 U 50 23 U 23 U 23 UJ 23 UJ 1.9 J 2.3 UJ 2.3 UJ	22 U 22 U 22 U 22 U 22 U 2.2 UJ 2.2 UJ 2.2 UJ 2.2 UJ 2.2 UJ
Aroclor-1254 Aroclor-1260 beta-BHC delta-BHC Dieldrin Endosulfan I	NA NA NA NA NA NA	19 U 19 U 19 U 19 U 1.9 U 1.9 U 1.9 U 1.9 U	18 U 18 U 18 U 18 U 1.8 U 1.8 U 1.8 U	19 U 19 U 19 U 19 U 1.9 U 1.9 U 1.9 U 1.9 U	17 U 17 U 17 U 17 U 18 UJ 1.8 UJ 1.8 UJ 1.8 UJ	18 U 18 U 18 U 18 U 1.8 U 1.8 U 1.8 U	18 U 18 U 18 U 18 U 1.8 U 1.8 U 1.8 U 1.8 U	18 U 18 U 18 U 18 U 1.8 U 1.8 U 1.8 U	17 U 17 U 17 U 17 U 18 UJ 1.8 UJ 1.8 UJ 1.8 UJ	17 U 17 U 17 U 17 U 17 U 1.9 UJ 1.9 UJ 1.9 UJ	17 U 17 U 17 U 17 U 1.9 UJ 1.9 UJ 1.9 UJ	17 U 17 U 17 U 17 U 19 UJ 1.9 UJ 1.9 UJ 1.9 UJ	19 U 19 U 40 J 19 U 1.9 UJ 1.9 UJ 1.9 UJ 1.9 UJ	17 U 17 U 17 U 17 U 17 U 19 UJ 1.9 UJ 1.9 UJ 1.9 UJ	23 U 23 U 23 U 23 U 50 23 U 2.3 UJ 2.3 UJ 1.9 J 2.3 UJ	22 U 22 U 22 U 22 U 22 U 2.2 UJ 2.2 UJ 2.2 UJ 2.2 UJ 2.2 UJ
Aroclor-1254 Aroclor-1260 beta-BHC delta-BHC Dieldrin Endosulfan I Endosulfan II Endosulfan sulfate	NA	19 U 19 U 19 U 19 U 1.9 U 1.9 U 1.9 U 1.9 U 1.9 U	18 U 18 U 18 U 18 U 1.8 U 1.8 U 1.8 U 1.8 U 1.8 U	19 U 19 U 19 U 19 U 1.9 U 1.9 U 1.9 U 1.9 U 1.9 U	17 U 17 U 17 U 17 U 18 UJ	18 U 18 U 18 U 18 U 1.8 U 1.8 U 1.8 U 1.8 U 1.8 U 1.8 U	18 U 18 U 18 U 18 U 1.8 U 1.8 U 1.8 U 1.8 U 1.8 U	18 U 18 U 18 U 18 U 1.8 U 1.8 U 1.8 U 1.8 U 1.8 U 1.8 U	17 U 17 U 17 U 17 U 17 U 18 UJ	17 U 17 U 17 U 17 U 1.9 UJ 1.9 UJ 1.9 UJ 1.9 UJ 1.9 UJ 1.9 UJ	17 U 17 U 17 U 17 U 19 UJ 1.9 UJ 1.9 UJ 1.9 UJ 1.9 UJ 1.9 UJ 1.9 UJ	17 U 17 U 17 U 17 U 1.9 UJ 1.9 UJ 1.9 UJ 1.9 UJ 1.9 UJ 1.9 UJ	19 U 19 U 40 J 19 U 1.9 UJ 1.9 UJ 1.9 UJ 1.9 UJ 1.9 UJ 1.9 UJ	17 U 17 U 17 U 17 U 17 U 19 U 1.9 U 1.9 U 1.9 U 1.9 U 1.9 U 1.9 U 1.9 U	23 U 23 U 23 U 23 U 23 U 50 23 U 2.3 UJ 2.3 UJ 2.3 UJ 2.3 UJ 2.3 UJ 2.3 UJ 2.3 UJ	22 U 22 U 22 U 22 U 22 U 2.2 UJ 2.2 UJ 2.2 UJ 2.2 UJ 2.2 UJ 2.2 UJ
Aroclor-1254 Aroclor-1260 beta-BHC delta-BHC Dieldrin Endosulfan I Endosulfan II Endosulfan sulfate Endrin	NA N	19 U 19 U 19 U 19 U 19 U 1.9 U	18 U 18 U 18 U 18 U 18 U 1.8 U	19 U 19 U 19 U 19 U 19 U 1.9 U	17 U 17 U 17 U 17 U 18 UJ	18 U 18 U 18 U 18 U 18 U 18 U 1.8 U	18 U 18 U 18 U 18 U 18 U 1.8 U	18 U 18 U 18 U 18 U 18 U 18 U 1.8 U	17 U 17 U 17 U 17 U 18 UJ 1.8 UJ	17 U 17 U 17 U 17 U 18 UJ 1.9 UJ	17 U 17 U 17 U 17 U 18 U 19 UJ 1.9 UJ	17 U 17 U 17 U 17 U 17 U 19 UJ 1.9 UJ	19 U 19 U 40 J 19 U 1.9 UJ 1.9 UJ 1.9 UJ 1.9 UJ 1.9 UJ 1.9 UJ 1.9 UJ 1.9 UJ 1.9 UJ 1.9 UJ	17 U 17 U 17 U 17 U 17 U 17 U 18 UJ 1.9 UJ	23 U 23 U 23 U 23 U 23 U 23 U 50 23 U 23 UJ	22 U 22 U 22 U 22 U 22 U 22 U 2.2 UJ
Aroclor-1254 Aroclor-1260 beta-BHC delta-BHC Dieldrin Endosulfan I Endosulfan II Endosulfan sulfate Endrin Endrin delehyde Endrin ketone gamma-BHC (Lindane)	NA N	19 U 19 U 19 U 19 U 19 U 1.9 U	18 U 18 U 18 U 18 U 18 U 1.8 U	19 U 19 U 19 U 19 U 19 U 1.9 U	17 U 17 U 17 U 17 U 18 UJ	18 U 18 U 18 U 18 U 18 U 1.8 U	18 U 18 U 18 U 18 U 18 U 1.8 U	18 U 18 U 18 U 18 U 18 U 1.8 U	17 U 17 U 17 U 17 U 18 UJ 1.8 UJ	17 U 17 U 17 U 17 U 19 UJ 1.9 UJ	17 U 17 U 17 U 17 U 18 UJ 1.9 UJ	17 U 17 U 17 U 17 U 17 U 1.9 UJ	19 U 19 U 40 J 19 U 1.9 UJ 1.9 UJ	17 U 19 UJ 1.9 UJ	23 U 50 23 U 2.3 UJ	22 U 2.2 UJ
Aroclor-1254 Aroclor-1260 beta-BHC delta-BHC Dieldrin Endosulfan I Endosulfan II Endosulfan sulfate Endrin aldehyde Endrin ketone gamma-BHC (Lindane) gamma-Chlordane	NA N	19 U 19 U 19 U 19 U 19 U 1.9 U	18 U 18 U 18 U 18 U 18 U 1.8 U	19 U 19 U 19 U 19 U 19 U 1.9 U	17 U 17 U 17 U 17 U 18 UJ 1.8 UJ	18 U 18 U 18 U 18 U 18 U 1.8 U	18 U 18 U 18 U 18 U 18 U 1.8 U	18 U 18 U 18 U 18 U 18 U 1.8 U	17 U 17 U 17 U 17 U 18 UJ 1.8 UJ	17 U 17 U 17 U 17 U 19 UJ 1.9 UJ	17 U 17 U 17 U 17 U 19 UJ 1.9 UJ	17 U 17 U 17 U 17 U 17 U 1.9 UJ	19 U 19 U 40 J 19 U 1.9 UJ	17 U 17 U 17 U 17 U 17 U 17 U 19 UJ 1.9 UJ	23 U 50 23 U 2.3 UJ	22 U 2.2 UJ
Aroclor-1254 Aroclor-1260 beta-BHC delta-BHC Dieldrin Endosulfan I Endosulfan II Endosulfan sulfate Endrin Endrin aldehyde Endrin ketone gamma-BHC (Lindane) gamma-Chlordane Heptachlor	NA N	19 U 19 U 19 U 19 U 19 U 1.9 U	18 U 18 U 18 U 18 U 18 U 18 U 1.8 U	19 U 19 U 19 U 19 U 19 U 1.9 U	17 U 17 U 17 U 17 U 18 UJ	18 U 18 U 18 U 18 U 18 U 18 U 1.8 U	18 U 18 U 18 U 18 U 18 U 1.8 U	18 U 18 U 18 U 18 U 18 U 18 U 1.8 U	17 U 17 U 17 U 17 U 18 UJ 1.8 UJ	17 U 17 U 17 U 17 U 17 U 19 UJ 1.9 UJ	17 U 17 U 17 U 17 U 17 U 19 UJ 1.9 UJ	17 U 17 U 17 U 17 U 17 U 19 UJ 1.9 UJ	19 U 19 U 40 J 19 U 1.9 UJ	17 U 17 U 17 U 17 U 17 U 17 U 19 UJ 1.9 UJ	23 U 50 23 U 2.3 UJ	22 U 2.2 UJ
Aroclor-1254 Aroclor-1260 beta-BHC delta-BHC Dieldrin Endosulfan I Endosulfan II Endosulfan sulfate Endrin Endrin aldehyde Endrin ketone gamma-BHC (Lindane) gamma-Chlordane	NA N	19 U 19 U 19 U 19 U 19 U 1.9 U	18 U 18 U 18 U 18 U 18 U 1.8 U	19 U 19 U 19 U 19 U 19 U 1.9 U	17 U 17 U 17 U 17 U 18 UJ 1.8 UJ	18 U 18 U 18 U 18 U 18 U 1.8 U	18 U 18 U 18 U 18 U 18 U 1.8 U	18 U 18 U 18 U 18 U 18 U 1.8 U	17 U 17 U 17 U 17 U 18 UJ 1.8 UJ	17 U 17 U 17 U 17 U 19 UJ 1.9 UJ	17 U 17 U 17 U 17 U 19 UJ 1.9 UJ	17 U 17 U 17 U 17 U 17 U 1.9 UJ	19 U 19 U 40 J 19 U 1.9 UJ	17 U 17 U 17 U 17 U 17 U 17 U 19 UJ 1.9 UJ	23 U 50 23 U 2.3 UJ	22 U 2.2 UJ
Aroclor-1254 Aroclor-1260 beta-BHC delta-BHC Dieldrin Endosulfan I Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan Bendrin Endrin sulfate Endrin Endrin Aldehyde Endrin ketone gamma-BHC (Lindane) gamma-Chlordane Heptachlor Heptachlor epoxide	NA N	19 U 19 U 19 U 19 U 19 U 19 U 1.9 U	18 U 18 U 18 U 18 U 18 U 1.8 U	19 U 19 U 19 U 19 U 19 U 19 U 1.9 U	17 U 17 U 17 U 17 U 18 UJ	18 U 18 U 18 U 18 U 18 U 18 U 1.8 U	18 U 18 U 18 U 18 U 18 U 18 U 1.8 U	18 U 1.8 U	17 U 17 U 17 U 17 U 18 UJ	17 U 17 U 17 U 17 U 17 U 19 UJ 1.9 UJ	17 U 17 U 17 U 17 U 18 U 19 UJ 1.9 UJ	17 U 17 U 17 U 17 U 17 U 19 UJ 1.9 UJ	19 U 19 U 40 J 19 U 1.9 UJ	17 U 17 U 17 U 17 U 17 U 17 U 18 UJ 1.9 UJ	23 U 50 23 U 2.3 UJ	22 U 2.2 UJ
Aroclor-1254 Aroclor-1260 beta-BHC delta-BHC Dieldrin Endosulfan I Endosulfan II Endosulfan sulfate Endrin Endrin aldehyde Endrin ketone gamma-BHC (Lindane) gamma-Chlordane Heptachlor epoxide Methoxychlor Toxaphene	NA N	19 U 19 U 19 U 19 U 19 U 1.9 U	18 U 18 U 18 U 18 U 18 U 1.8 U	19 U 19 U 19 U 19 U 19 U 1.9 U	17 U 17 U 17 U 17 U 18 UJ	18 U 18 U 18 U 18 U 18 U 1.8 U	18 U 18 U 18 U 18 U 18 U 18 U 1.8 U	18 U 18 U 18 U 18 U 18 U 18 U 1.8 U	17 U 17 U 17 U 17 U 18 UJ 1.8 UJ	17 U 17 U 17 U 17 U 17 U 19 UJ 1.9 UJ	17 U 17 U 17 U 17 U 17 U 19 UJ 1.9 UJ	17 U 17 U 17 U 17 U 17 U 19 UJ 1.9 UJ	19 U 19 U 40 J 19 U 1.9 UJ	17 U 18 UJ 1.9 UJ	23 U 50 23 U 2.3 UJ	22 U 2.2 UJ
Aroclor-1254 Aroclor-1260 beta-BHC delta-BHC Dieldrin Endosulfan I Endosulfan II Endosulfan sulfate Endrin Endrin aldehyde Endrin ketone gamma-BHC (Lindane) gamma-Chlordane Heptachlor Heptachlor epoxide Methoxychlor Toxaphene Total Metals (mg/kg)	NA N	19 U 19 U 19 U 19 U 19 U 1.9 U	18 U 18 U 18 U 18 U 18 U 1.8 U	19 U 19 U 19 U 19 U 19 U 1.9 U	17 U 17 U 17 U 17 U 18 UJ	18 U 18 U 18 U 18 U 18 U 18 U 1.8 U	18 U 18 U 18 U 18 U 18 U 18 U 1.8 U	18 U 18 U 18 U 18 U 18 U 18 U 1.8 U	17 U 17 U 17 U 17 U 18 UJ	17 U 17 U 17 U 17 U 18 UJ 1.9 UJ	17 U 17 U 17 U 17 U 17 U 19 UJ 1.9 UJ	17 U 17 U 17 U 17 U 17 U 19 UJ 1.9 UJ	19 U 19 U 40 J 19 U 1.9 UJ	17 U 17 U 17 U 17 U 17 U 17 U 18 W 1.9 W	23 U	22 U 2.2 UJ 3.3 UJ
Aroclor-1254 Aroclor-1260 beta-BHC delta-BHC Dieldrin Endosulfan I Endosulfan II Endosulfan sulfate Endrin Endrin aldehyde Endrin ketone gamma-BHC (Lindane) gamma-Chlordane Heptachlor Heptachlor Toxaphene Total Metals (mg/kg) Aluminum	NA N	19 U 19 U 19 U 19 U 19 U 19 U 1.9 U	18 U 18 U 18 U 18 U 18 U 1.8 U	19 U 19 U 19 U 19 U 19 U 19 U 1.9 U	17 U 17 U 17 U 17 U 18 UJ 1.8 UJ	18 U 18 U 18 U 18 U 18 U 18 U 1.8 U	18 U 18 U 18 U 18 U 18 U 18 U 1.8 U	18 U 18 U 18 U 18 U 18 U 18 U 1.8 U	17 U 17 U 17 U 17 U 18 UJ 1.8 UJ	17 U 17 U 17 U 17 U 18 UJ 1.9 UJ	17 U 17 U 17 U 17 U 18 UJ 1.9 UJ	17 U 17 U 17 U 17 U 17 U 19 UJ 1.9 UJ	19 U 19 U 40 J 19 U 1.9 UJ	17 U 19 UJ 1.9 UJ	23 U	22 U 2.2 UJ 43 UJ
Aroclor-1254 Aroclor-1260 beta-BHC delta-BHC Dieldrin Endosulfan I Endosulfan II Endosulfan sulfate Endrin Endrin aldehyde Endrin ketone gamma-BHC (Lindane) gamma-Chlordane Heptachlor Heptachlor epoxide Methoxychlor Toxaphene Total Metals (mg/kg)	NA N	19 U 19 U 19 U 19 U 19 U 1.9 U	18 U 18 U 18 U 18 U 18 U 1.8 U	19 U 19 U 19 U 19 U 19 U 1.9 U	17 U 17 U 17 U 17 U 18 UJ	18 U 18 U 18 U 18 U 18 U 18 U 1.8 U	18 U 18 U 18 U 18 U 18 U 18 U 1.8 U	18 U 18 U 18 U 18 U 18 U 18 U 1.8 U	17 U 17 U 17 U 17 U 18 UJ	17 U 17 U 17 U 17 U 18 UJ 1.9 UJ	17 U 17 U 17 U 17 U 17 U 19 UJ 1.9 UJ	17 U 17 U 17 U 17 U 17 U 19 UJ 1.9 UJ	19 U 19 U 40 J 19 U 1.9 UJ	17 U 17 U 17 U 17 U 17 U 17 U 18 W 1.9 W	23 U	22 U 22 U 22 U 22 U 22 U 22 U 2.2 UJ 2.3 UJ 2.4 UJ 2.5 UJ 2.5 UJ 2.7 UJ 2.8 UJ 2.9 UJ
Aroclor-1254 Aroclor-1260 beta-BHC delta-BHC Dieldrin Endosulfan I Endosulfan II Endosulfan sulfate Endrin Aldehyde Endrin ketone gamma-BHC (Lindane) gamma-Chlordane Heptachlor Heptachlor Toxaphene Total Metals (mg/kg) Aluminum Antimony Arsenic Barium	NA N	19 U 19 U 19 U 19 U 19 U 19 U 1.9 U	18 U 18 U 18 U 18 U 18 U 1.8 U	19 U 19 U 19 U 19 U 19 U 19 U 1.9 U 3.8 U 3.480 J+ 1.6 U 0.85 J	17 U 17 U 17 U 17 U 17 U 18 UJ	18 U 18 U 18 U 18 U 18 U 18 U 1.8 U 1.5 U 1.5 U 0.93 J 9	18 U 18 U 18 U 18 U 18 U 18 U 1.8 U	18 U 1.8 U 5.690 1.5 UJ 0.91 J 10.6	17 U 17 U 17 U 17 U 17 U 18 UJ 19 UJ 19 UJ 19 UJ	17 U 17 U 17 U 17 U 17 U 18 UJ 1.9 UJ	17 U 17 U 17 U 17 U 17 U 18 UJ 1.9 UJ	17 U 17 U 17 U 17 U 17 U 18 UJ 1.9 UJ	19 U 19 U 40 J 19 U 40 J 19 U 1.9 UJ	17 U 17 U 17 U 17 U 17 U 17 U 18 UJ 1.9 UJ	23 U	22 U 2.2 UJ 2.3 UJ 2.3 UJ 2.4 UJ 2.5 UJ 2.6 UJ 2.7 J 2.7 UJ 2.8 UJ 2.9
Aroclor-1254 Aroclor-1260 beta-BHC delta-BHC Dieldrin Endosulfan I Endosulfan II Endosulfan sulfate Endrin aldehyde Endrin aldehyde Endrin ketone gamma-BHC (Lindane) gamma-Chlordane Heptachlor Heptachlor Toxaphene Total Metals (mg/kg) Aluminum Antimony Arsenic Barium Berylium	NA N	19 U 19 U 19 U 19 U 19 U 19 U 1.9 U	18 U 18 U 18 U 18 U 18 U 18 U 1.8 U 1.6 U 1.8 U 1.7 U 1.8 U	19 U 19 U 19 U 19 U 19 U 19 U 1.9 U	17 U 17 U 17 U 17 U 17 U 18 UJ 1.8 UJ	18 U 18 U 18 U 18 U 18 U 18 U 1.8 U	18 U 1.8 U 1.1 U 1.8 U 1	18 U 1.8 U 1.5 U 1.5 U 1.5 U 1.6 0.036 J	17 U 17 U 17 U 17 U 17 U 18 UJ 1.8 UJ 1.9 UJ	17 U 17 U 17 U 17 U 17 U 19 UJ 1.9 UJ	17 U 17 U 17 U 17 U 17 U 18 UJ 1.9 UJ	17 U 17 U 17 U 17 U 17 U 17 U 18 UJ 1.9 UJ 1.19 UJ 1.20 UJ 1.30 UJ 1.30 UJ	19 U 19 U 19 U 40 J 19 U 1.9 UJ 1.7 UJ 1.9 UJ	17 U 17 U 17 U 17 U 17 U 17 U 18 UJ 1.9 UJ	23 U	22 U
Aroclor-1254 Aroclor-1260 beta-BHC delta-BHC Dieldrin Endosulfan I Endosulfan II Endosulfan sulfate Endrin aldehyde Endrin aldehyde Endrin ketone gamma-BHC (Lindane) gamma-Chlordane Heptachlor Heptachlor epoxide Methoxychlor Toxaphene Total Metals (mg/kg) Aluminum Antimony Arsenic Barium Beryllium Cadmium	NA N	19 U 19 U 19 U 19 U 19 U 19 U 1.9 U	18 U 1.8 U 1.6 U 1.6 U 0.78 J 8.6 0.16 U 0.47 U	19 U 19 U 19 U 19 U 19 U 19 U 1.9 U	17 U 17 U 17 U 17 U 17 U 18 UJ 19 UJ	18 U 18 U 18 U 18 U 18 U 18 U 1.8 U 1.5 U 1.5 U 1.7 U 1.8 U	18 U 18 U 18 U 18 U 18 U 18 U 1.8 U	18 U 1.8 U 1.5 U 1.8 U 1.7 U 1.8 U 1	17 U 17 U 17 U 17 U 17 U 18 UJ	17 U 17 U 17 U 17 U 17 U 18 UJ 1.9 UJ	17 U 17 U 17 U 17 U 17 U 18 UJ 1.9 UJ	17 U 17 U 17 U 17 U 17 U 18 UJ 1.9 UJ	19 U 19 U 40 J 19 U 19 U 19 U 1.9 UJ	17 U 19 UJ 1.9 UJ 1.0 UJ	23 U	22 U
Aroclor-1254 Aroclor-1260 beta-BHC delta-BHC Dieldrin Endosulfan II Endosulfan sulfate Endrin aldehyde Endrin aldehyde Endrin ketone gamma-BHC (Lindane) gamma-Chlordane Heptachlor epoxide Methoxychlor Toxaphene Total Metals (mg/kg) Aluminum Antimony Arsenic Barium Beryllium Cadmium Calcium	NA N	19 U 19 U 19 U 19 U 19 U 19 U 1.9 U	18 U 18 U 18 U 18 U 18 U 18 U 1.8 U	19 U 19 U 19 U 19 U 19 U 19 U 1.9 U	17 U 17 U 17 U 17 U 17 U 18 UJ 19 UJ 10 UJ 11 UJ	18 U 18 U 18 U 18 U 18 U 18 U 1.8 U	18 U 18 U 18 U 18 U 18 U 18 U 1.8 U	18 U 1.8 U 1	17 U 17 U 17 U 17 U 17 U 18 UJ 19 UJ 10 UJ 11 UJ	17 U 17 U 17 U 17 U 17 U 18 UJ 1.9 UJ	17 U 17 U 17 U 17 U 17 U 18 UJ 1.9 UJ	17 U 17 U 17 U 17 U 17 U 17 U 18 UJ 1.9 UJ	19 U 19 U 40 J 19 U 19 U 19 U 1.9 UJ	17 U 18 UJ 1.9 UJ	23 U	22 U
Aroclor-1254 Aroclor-1260 beta-BHC delta-BHC Dieldrin Endosulfan I Endosulfan II Endosulfan sulfate Endrin Endrin aldehyde Endrin aldehyde Endrin ketone gamma-BHC (Lindane) gamma-Chlordane Heptachlor Heptachlor Heptachlor Toxaphene Total Metals (mg/kg) Aluminum Antimony Arsenic Barium Beryllium Cadmium	NA N	19 U 19 U 19 U 19 U 19 U 19 U 1.9 U	18 U 1.8 U 1.6 U 1.6 U 0.78 J 8.6 0.16 U 0.47 U	19 U 19 U 19 U 19 U 19 U 19 U 1.9 U	17 U 17 U 17 U 17 U 17 U 18 UJ 19 UJ	18 U 18 U 18 U 18 U 18 U 18 U 1.8 U 1.5 U 1.5 U 1.7 U 1.8 U	18 U 18 U 18 U 18 U 18 U 18 U 1.8 U	18 U 1.8 U 1.5 U 1.8 U 1.7 U 1.8 U 1	17 U 17 U 17 U 17 U 17 U 18 UJ	17 U 17 U 17 U 17 U 17 U 18 UJ 1.9 UJ	17 U 17 U 17 U 17 U 17 U 18 UJ 1.9 UJ	17 U 17 U 17 U 17 U 17 U 18 UJ 1.9 UJ	19 U 19 U 40 J 19 U 19 U 19 U 1.9 UJ	17 U 19 UJ 1.9 UJ 1.0 UJ	23 U	22 U

CTO-11 Camp Lejeune - Site 85 Validated Groundwater Detected Analytical Results July 2009

Station ID	IR85-BAT	IR85-SS06	IR85-SS07	IR85-SS08	IR85	5-SS09	IR85-SS10	IR85-SS11	IR85-SS12	IR85-SS13	IR85	5-SS14	IR85-SS15	IR85-SS16	IR85-SS17	IR85-SS18
Sample ID	IR85-BAT-071009	IR85-SS06-00-01-09C	IR85-SS07-00-01-09C	IR85-SS08-00-01-09C	IR85-SS09-00-01-09C	IR85-SS09D-00-01-09C	IR85-SS10-00-01-09C	IR85-SS11-00-01-09C	IR85-SS12-00-01-09C	IR85-SS13-00-01-09C	IR85-SS14-00-01-09C	IR85-SS14D-00-01-09C	IR85-SS15-00-01-09C	IR85-SS16-00-01-09C	IR85-SS17-00-01-09C	IR85-SS18-00-01-09C
Sample Date	07/10/09	07/09/09	07/09/09	07/09/09	07/10/09	07/10/09	07/10/09	07/10/09	07/10/09	07/10/09	07/10/09	07/10/09	07/10/09	07/10/09	07/10/09	07/10/09
Chemical Name																
Iron	1,780	2,310	1,690	1,820	2,040	2,000	2,530	1,830	2,010	1,870	3,730	3,700	3,170	3,990	4,820	11,500
Lead	1,640	4.8	7.2	7.8	7.8	6.5	17.5	6.2	17.4	7.2	7.5	7.3	42.6	35.2	165	614
Magnesium	98.1 J	173	108	110	95.8	95.2	173	146	112	98.1	172	178	165	143	80.5 J	143
Manganese	2,740	11.6	9.6	22.6	6.7	7.7	43.7	5.9	20.4	12.6	9.1	9.9	294	417	10,700	1,120
Mercury	222	0.044	0.033 U	0.038	0.032 U	0.037	0.31	0.034 U	0.055	0.039	0.059	0.06	1.1	0.27	5	8.8
Nickel	5.9 J	1.2	0.91	1.1	0.93	0.81	1.3	2.5	1.3	1.4	1.3	1.2	2.2	1.8	8.7 J	2.8 J
Potassium	7,460 U	136	73.1 J	81.7 U	78.3 U	72.1 J	115	96.9	79.5 U	79.3 U	109	117	126	109	1,930 U	117 J
Selenium	14.9 U	1.6 U	1.6 U	1.6 U	1.6 U	1.5 U	1.5 U	1.5 U	1.6 U	1.6 U	0.45 J	1.6 U	1.7 U	1.6 U	38.5 U	9.6 U
Silver	14.9 U	1.6 U	0.083 J	1.6 U	1.6 U	1.5 U	1.5 U	1.5 U	0.15 J	0.21 J	1.6 U	1.6 U	0.11 J	0.29 J	38.5 U	9.6 U
Sodium	1,870 U	3.2 J	3.7 J	204 U	5.7 J	7.5 J	3.4 J	4.3 J	3.9 J	198 U	6.8 J	6.4 J	207 U	206 U	4,820 U	1,200 U
Thallium	NA	2.5 U	2.4 U	2.4 U	2.3 U	2.3 U	2.3 U	2.3 U	2.4 U	2.4 U	2.4 U	2.5 U	2.5 U	0.44 J	18.7 J	14.4 U
Vanadium	373 U	6.6	5.7	5.5	6 J	5.8	7.7	7.1	5.9 J	5.3 J	9.8 J	10 J	7.8 J	7.6 J	96.3 U	9 J
Zinc	45,000	33.4	5.2	31.4	3.9 U	3.9 U	252	4.2	30.2	22.9	4 U	4.1 U	758	406	5,600	2,100
Wet Chemistry																
pH (ph)	NA	4.8	4.5	5.6	4.4	4.5	5.6	4.3	4.8	4.8	4.4	4.4	5.9	6.4	6.4	5.4

- Notes:

 Shading indicates detections

 NA Not analyzed

 J Analyte present, value may or may not be accurate or precise

 J Analyte present, value may be biased low, actual value may be higher

 J+ Analyte present, value may be biased high, actual value may be lower

 R Unreliable Result

 U The material was analyzed for, but not detected

 UJ Analyte not detected, quantitation limit may be inaccurate

 mg/kg Milligrams per kilogram

 ph pH units

- ph pH units µg/kg Micrograms per kilogram

CTO-11 Camp Lejeune - Site 85 Validated Subsurface Soil Raw Analytical Results July 2009

	1	1						1	1		
Station ID	IR85-SB06	IR85-SB07	IR85-SB08	IR85-SB09	IR85-SB10	IR85-SB11	IR85-SB12	IR85-SB13	IR85-SB14	1	SB17
Sample ID	IR85-SB06-2-7-09C	IR85-SB07-2-4-09C	IR85-SB08-2-7-09C	IR85-SB09-2-7-09C	IR85-SB10-4-7-09C	IR85-SB11-2-7-09C	IR85-SB12-2-7-09C	IR85-SB13-2-7-09C	IR85-SB14-2-7-09C		IR85-SB17D-6-7-09C
Sample Date	07/29/09	07/28/09	07/28/09	07/27/09	07/29/09	07/29/09	07/28/09	07/28/09	07/29/09	07/28/09	07/28/09
Chemical Name											
Voletile Overenie Commounde (verlier)											
Volatile Organic Compounds (μg/kg) 1,1,1-Trichloroethane	1.6 U	1.4 R	2.1 UJ	1.9 UJ	1.6 U	1.9 U	1.7 U	1.6 UJ	1.7 U	1.8 UJ	5.9 R
1,1,2,2-Tetrachloroethane	1.6 UJ	1.4 R	2.1 UJ	1.9 UJ	1.6 UJ	1.9 UJ	1.7 U	1.6 UJ	1.7 U	1.8 UJ	5.9 R
1,1,2-Trichloro-1,2,2-trifluoroethane(Freon-113)	1.6 U	1.4 R	2.1 UJ	1.9 UJ	1.6 U	1.9 U	1.7 U	1.6 UJ	1.7 U	1.8 UJ	5.9 R
1,1,2-Trichloroethane	1.6 U	1.4 R	2.1 UJ	1.9 UJ	1.6 U	1.9 U	1.7 U	1.6 UJ	1.7 U	1.8 UJ	5.9 R
1,1-Dichloroethane	1.6 U	1.4 R	2.1 UJ	1.9 UJ	1.6 U	1.9 U	1.7 U	1.6 UJ	1.7 U	1.8 UJ	5.9 R
1,1-Dichloroethene	1.6 U	1.4 R	2.1 UJ	1.9 UJ	1.6 U	1.9 U	1.7 U	1.6 UJ	1.7 U	1.8 UJ	5.9 R
1,2,4-Trichlorobenzene	2.1 J	1.4 R	2.6 J	1.9 UJ	2 J	2.7 J	1.7 U	1.6 UJ	2 J	1.8 UJ	5.9 R
1,2-Dibromo-3-chloropropane	1.6 U	1.4 R	2.1 UJ	1.9 UJ	1.6 U	2.4 J	1.7 U	1.6 UJ	1.7 U	1.8 UJ	5.9 R
1,2-Dibromoethane	1.6 U	1.4 R	2.1 UJ	1.9 UJ	1.6 U	1.9 U	1.7 U	1.6 UJ	1.7 U	1.8 UJ	5.9 R
1,2-Dichlorobenzene 1,2-Dichloroethane	1.6 U 1.6 U	1.4 R 1.4 R	2.1 UJ 2.1 UJ	1.9 UJ 1.9 UJ	1.6 U 1.6 U	1.9 U 1.9 U	1.7 U 1.7 U	1.6 UJ 1.6 UJ	1.7 U 1.7 U	1.8 UJ 1.8 UJ	5.9 R 5.9 R
1,2-Dichloropropane	1.6 U	1.4 R	2.1 UJ	1.9 UJ	1.6 U	1.9 U	1.7 U	1.6 UJ	1.7 U	1.8 UJ	5.9 R
1,3-Dichlorobenzene	1.6 U	1.4 R	1.4 J	1.9 UJ	1.6 UJ	1.9 U	1.7 U	1.6 UJ	1.7 U	1.8 UJ	5.9 R
1,4-Dichlorobenzene	1.6 U	1.4 R	2.1 UJ	1.9 UJ	1.6 U	1.9 U	1.7 U	1.6 UJ	1.7 U	1.8 UJ	5.9 R
2-Butanone	1.5 J	2.8 J	2.3 J	3.8 UJ	2.6 J	2.6 J	3.5 U	4.1 J	3.2 J	1.6 J	12 R
2-Hexanone	3.3 U	2.9 R	4.1 UJ	3.8 UJ	3.1 U	3.8 U	3.5 U	3.3 UJ	3.3 U	3.6 UJ	12 R
4-Methyl-2-pentanone	3.3 U	2.9 R	4.1 UJ	3.8 UJ	3.1 U	1.5 J	3.5 U	3.3 UJ	3.3 U	3.6 UJ	12 R
Acetone	30 J	76 J	39 J	3.8 UJ	69 J	33 J	3.5 U	100 J	75 J	90 J	20 J
Benzene	1.6 UJ	1.4 R	2.1 UJ	1.9 UJ	1.6 UJ	1.9 UJ	1.7 U	1.6 UJ	1.7 U	1.8 UJ	5.9 R
Bromodichloromethane	1.6 U	1.4 R	2.1 UJ	1.9 UJ	1.6 U	1.9 U	1.7 U	1.6 UJ	1.7 U	1.8 UJ	5.9 R
Bromoform	1.6 U 3.3 R	1.4 R	2.1 UJ	1.9 UJ 3.8 UJ	1.6 U	1.9 U 3.8 R	1.7 U 3.5 UJ	1.6 UJ 3.3 R	1.7 U	1.8 UJ	5.9 R 12 R
Bromomethane Carbon disulfide	3.3 K 1.6 UJ	2.9 R 1.4 R	4.1 R 2.1 UJ	3.8 UJ 1.9 UJ	3.1 R 1.6 UJ	3.8 K 1.9 UJ	3.5 UJ 1.7 U	3.3 K 1.6 UJ	3.3 R 1.7 U	3.6 R 1.8 UJ	12 R 5.9 R
Carbon tetrachloride	1.6 U	1.4 R	2.1 UJ	1.9 UJ	1.6 U	1.9 U	1.7 U	1.6 UJ	1.7 U	1.8 UJ	5.9 R
Chlorobenzene	1.6 UJ	1.4 R	2.1 UJ	1.9 UJ	1.6 UJ	1.9 UJ	1.7 U	1.6 UJ	1.7 U	1.8 UJ	5.9 R
Chloroethane	3.3 UJ	2.9 R	4.1 UJ	3.8 UJ	3.1 UJ	3.8 UJ	3.5 U	3.3 UJ	3.3 R	3.6 UJ	12 R
Chloroform	1.6 U	1.4 R	2.1 UJ	1.9 UJ	1.6 U	1 J	1.7 U	1.6 UJ	1.7 U	1.8 UJ	5.9 R
Chloromethane	3.3 U	2.9 R	4.1 UJ	3.8 UJ	3.1 U	3.8 U	3.5 U	3.3 UJ	3.3 U	3.6 UJ	12 R
cis-1,2-Dichloroethene	1.6 UJ	1.4 R	2.1 UJ	1.9 UJ	1.6 UJ	1.9 UJ	1.7 U	1.6 UJ	1.7 U	1.8 UJ	5.9 R
cis-1,3-Dichloropropene	1.6 U	1.4 R	2.1 UJ	1.9 UJ	1.6 U	1.9 U	1.7 U	1.6 UJ	1.7 U	1.8 UJ	5.9 R
Cyclohexane	1.6 U	1.4 R	2.1 UJ	1.9 UJ	1.6 U	1.9 U	1.7 U	1.6 UJ	1.7 U	1.8 UJ	5.9 R
Dibromochloromethane Dichlorodifluoromethane (Freon-12)	1.6 U 1.6 U	1.4 R 1.4 R	2.1 UJ 2.1 UJ	1.9 UJ 1.9 UJ	1.6 U 1.6 U	1.9 U 1.9 U	1.7 U 1.7 U	1.6 UJ 1.6 UJ	1.7 U 1.7 U	1.8 UJ 1.8 UJ	5.9 R 5.9 R
Ethylbenzene	1.6 UJ	1.4 R	2.1 UJ	1.9 UJ	1.6 UJ	1.9 UJ	1.7 U	1.6 UJ	1.7 U	1.8 UJ	5.9 R
Isopropylbenzene	2.2 J	1.4 R	2.7 J	1.9 UJ	2 J	2.6 J	1.7 U	2.1 J	1.7 U	1.8 UJ	5.9 R
Methyl acetate	1.6 U	20 J	6.8 J	1.9 UJ	1.6 U	1.3 J	3.4	1.2 J	1.7 U	3 J	5.9 R
Methylcyclohexane	1.6 U	1.4 R	2.1 UJ	1.9 UJ	1.6 U	1.9 U	1.7 U	1.6 UJ	1.7 U	1.8 UJ	5.9 R
Methylene chloride	1.7 J	1.9 J	2.3 J	1.4 J	3.1 U	0.88 J	1.7 J	1.4 J	3.3 U	0.62 J	12 R
Methyl-tert-butyl ether (MTBE)	1.6 U	1.4 R	2.1 UJ	1.9 UJ	1.6 U	1.9 U	1.7 U	1.6 UJ	1.7 U	1.8 UJ	5.9 R
Styrene	2.2 J	1.4 R	2.8 J	1.9 UJ	2.1 J	2.7 J	1.7 U	2.3 J	3.3 U	2.5 J	5.9 R
Tetrachloroethene	1.3 J	1.4 R	1.6 J	1.9 UJ	1.6 U	1.6 J	1.7 U	1.3 J	1.7 U	1.8 UJ	5.9 R
Toluene trans-1,2-Dichloroethene	1.6 U	1.4 R	2.1 UJ	1.9 UJ	1.6 U	1.9 U	1.7 U 1.7 U	1.6 UJ	1.7 U	0.64 J	5.9 R
trans-1,2-Dichloroethene trans-1,3-Dichloropropene	1.6 U 1.6 U	1.4 R 1.4 R	2.1 UJ 2.1 UJ	1.9 UJ 1.9 UJ	1.6 U 1.6 U	1.9 U 1.9 U	1.7 U 1.7 U	1.6 UJ 1.6 UJ	1.7 U 1.7 U	1.8 UJ 1.8 UJ	5.9 R 5.9 R
Trichloroethene	1.6 U	1.4 R	2.1 UJ	1.9 UJ	1.6 U	1.9 U	1.7 U	1.6 UJ	1.7 U	1.8 UJ	5.9 R
Trichlorofluoromethane(Freon-11)	1.6 UJ	1.4 R	2.1 UJ	1.9 UJ	1.6 UJ	1.9 UJ	1.7 U	1.6 UJ	1.7 U	1.8 UJ	5.9 R
Vinyl chloride	3.3 R	2.9 R	4.1 R	3.8 UJ	3.1 R	3.8 R	3.5 UJ	3.3 R	3.3 U	3.6 R	12 R
Xylene, total	1.6 U	1.4 R	2.1 UJ	1.9 UJ	1.6 U	1.9 U	1.7 UJ	1.6 UJ	3.3 U	1.8 UJ	5.9 R
Semivolatile Organic Compounds (µg/kg)	400 !!	400 !!	400.11	400.11	400.11	400.11	400.11	400 11	400 11	400 !!	000 11
1,1-Biphenyl	180 U 180 U	190 U 190 U	180 U 180 U	190 U 190 U	200 U 200 U						
2,2'-Oxybis(1-chloropropane) 2,4,5-Trichlorophenol	180 U	190 U	180 U	190 U	200 U						
2,4-Dichlorophenol	180 U	190 U	180 U	190 U	200 U						
2,4-Dimethylphenol	180 U	190 U	180 U	190 U	200 U						
2,4-Dinitrophenol	180 U	190 U	180 U	190 UJ	190 U	190 U	190 UJ	190 U	190 U	190 U	200 U
2,4-Dinitrotoluene	180 U	190 U	180 U	190 U	200 U						
2,6-Dinitrotoluene	180 U	190 U	180 U	190 U	200 U						
2-Chloronaphthalene	180 U	190 U	180 U	190 U	200 U						
2-Chlorophenol	180 U	190 U	180 U	190 U	200 U						
2-Methylnaphthalene	180 U	190 U	180 U	190 U	200 U						
2-Methylphenol	180 U	190 U	180 U	190 U	200 U						

CTO-11 Camp Lejeune - Site 85 Validated Subsurface Soil Raw Analytical Results July 2009

					July 2009						
Station ID	IR85-SB06	IR85-SB07	IR85-SB08	IR85-SB09	IR85-SB10	IR85-SB11	IR85-SB12	IR85-SB13	IR85-SB14	IR85	-SB17
Sample ID	IR85-SB06-2-7-09C	IR85-SB07-2-4-09C	IR85-SB08-2-7-09C	IR85-SB09-2-7-09C	IR85-SB10-4-7-09C	IR85-SB11-2-7-09C	IR85-SB12-2-7-09C	IR85-SB13-2-7-09C	IR85-SB14-2-7-09C	IR85-SB17-6-7-09C	IR85-SB17D-6-7-09C
Sample Date	07/29/09	07/28/09	07/28/09	07/27/09	07/29/09	07/29/09	07/28/09	07/28/09	07/29/09	07/28/09	07/28/09
Chemical Name											
2-Nitroaniline	180 U	190 U	180 U	190 U	200 U						
2-Nitrophenol	180 U	190 U	180 U	190 U	200 U						
3,3'-Dichlorobenzidine	180 U	190 U	180 U	190 UJ	190 U	190 U	190 UJ	190 U	190 UJ	190 U	200 U
3-Nitroaniline	180 U	190 U	180 U	190 U	200 U						
4,6-Dinitro-2-methylphenol	180 U	190 U	180 U	190 UJ	190 U	190 U	190 UJ	190 U	190 U	190 U	200 U
4-Bromophenyl-phenylether	180 U	190 U	180 U	190 U	200 U						
4-Chloro-3-methylphenol	180 U	190 U	180 U	190 U	200 U						
4-Chlorophopul phopulathor	180 U 180 U	190 U 190 U	180 U 180 U	190 U 190 U	200 U 200 U						
4-Chlorophenyl-phenylether 4-Methylphenol	180 U	190 U	180 U	190 U	200 U						
4-Nitroaniline	180 UJ	190 UJ	180 UJ	190 UJ	200 UJ						
4-Nitrophenol	180 U	190 U	180 U	190 UJ	190 U	190 U	190 UJ	190 U	190 U	190 U	200 U
Acenaphthene	180 U	190 U	180 U	190 U	200 U						
Acenaphthylene	180 U	190 U	180 U	190 U	200 U						
Acetophenone	180 U	190 U	180 U	190 U	200 U						
Anthracene	180 U	190 U	180 U	190 U	200 U						
Atrazine	180 UJ	190 UJ	180 UJ	190 U	190 UJ	200 UJ					
Benzaldehyde	180 R	190 R	180 R	190 R	200 R						
Benzo(a)anthracene	37 U	37 U	36 U	38 U	37 U	37 U	38 U	37 U	37 U	38 U	39 U
Benzo(a)pyrene	37 U	37 U	36 U	38 U	37 U	37 U	38 U	37 U	37 U	38 U	39 U
Benzo(b)fluoranthene	37 U	37 U	36 U	38 U	37 U	37 U	38 U	37 U	37 U	38 U	39 U
Benzo(g,h,i)perylene	180 U	190 U	180 U	190 U	200 U						
Benzo(k)fluoranthene	180 U	190 U	180 U	190 U	200 U						
bis(2-Chloroethoxy)methane	180 U	190 U	180 U	190 U	200 U						
bis(2-Chloroethyl)ether	180 U	190 U	180 U	190 U	200 U						
bis(2-Ethylhexyl)phthalate	180 U	190 U	180 U	190 U	58 J	190 U	200 U				
Butylbenzylphthalate	180 U	190 U	180 U	190 U	200 U						
Caprolactam Carbazole	180 U 180 U	190 U 190 U	180 U 180 U	190 U 190 UJ	190 U 190 U	200 U 200 U					
Chrysene	180 U	190 U	180 U	190 U	200 U						
Dibenz(a,h)anthracene	37 U	37 U	36 U	38 U	37 U	37 U	38 U	37 U	37 U	38 U	39 U
Dibenzofuran	180 U	190 U	180 U	190 U	200 U						
Diethylphthalate	180 U	190 U	180 U	190 U	200 U						
Dimethyl phthalate	180 U	190 U	180 U	190 U	200 U						
Di-n-butylphthalate	180 U	190 U	180 U	190 U	200 U						
Di-n-octylphthalate	180 U	190 U	180 U	190 UJ	190 U	200 U					
Fluoranthene	180 U	190 U	180 U	190 U	200 U						
Fluorene	180 U	190 U	180 U	190 U	200 U						
Hexachlorobenzene	180 U	190 U	180 U	190 U	200 U						
Hexachlorobutadiene	180 U	190 U	180 U	190 U	200 U						
Hexachlorocyclopentadiene	180 U	190 U	180 U	190 UJ	190 U	200 U					
Hexachloroethane	180 U	190 U	180 U	190 U	200 U						
Indeno(1,2,3-cd)pyrene	37 U	37 U	36 U	38 U	37 U	37 U	38 U	37 U	37 U	38 U	39 U
Isophorone	37 U	37 U	36 U	38 U	37 U	37 U	38 U	37 U	37 U	38 U	39 U
Naphthalene n-Nitroso-di-n-propylamine	180 U 37 U	190 U 37 U	180 U 36 U	190 U 38 U	190 U 37 U	190 U 37 U	190 U 38 U	190 U 37 U	190 U 37 UJ	190 U 38 U	200 U 39 U
n-Nitroso-di-n-propylamine n-Nitrosodiphenylamine	180 U	190 U	180 U	190 U	37 U 190 U	190 U	38 U 190 U	190 U	190 U	190 U	200 U
Nitrobenzene	180 U	190 U	180 U	190 U	200 U						
Pentachlorophenol	180 U	190 U	180 U	190 U	200 U						
Phenanthrene	180 U	190 U	180 U	190 U	200 U						
Phenol	180 U	190 U	180 U	190 U	200 U						
Pyrene	180 U	190 U	180 U	190 U	200 U						
Pesticide/Polychlorinated Biphenyls (µg/kg)											
4,4'-DDD	1.8 U	1.3 J	1.8 U	1.9	1.9 U	1.9 U	1.7 U	1.9 U	1.9 U	1.9 U	2 U
4,4'-DDE	2	31	1.8 U	1.7 U	1.9 U	1.9 U	1.7 U	1.9 U	1.9 U	1.9 U	2 U
4,4'-DDT	1.3 J	10	1.8 U	1.7 U	1.9 U	1.9 U	1.7 U	1.9 U	1.9 U	1.9 U	2 U
Aldrin	1.8 U	1.9 U	1.8 U	1.7 U	1.9 U	1.9 U	1.7 U	1.9 U	1.9 U	1.9 U	2 U
alpha-BHC	1.8 U	1.9 U	1.8 U	1.7 U	1.9 U	1.9 U	1.7 U	1.9 U	1.9 U	1.9 U	2 U
alpha-Chlordane	1.8 U	1.9 U	1.8 U	1.7 U	1.9 U	1.9 U	1.7 U	1.9 U	1.9 U	1.9 U	2 U
Aroclor-1016	17 U	19 UJ	17 UJ	19 U	17 U	17 UJ	19 U	19 U	19 U	17 U	17 U
Arcelor-1221	17 U	19 UJ	17 UJ	19 U	17 U	17 UJ	19 U	19 U	19 U	17 U	17 U
Aroclor-1232	17 U	19 UJ	17 UJ	19 U	17 U	17 UJ	19 U	19 U	19 U	17 U	17 U
Aroclor-1242	17 U	19 UJ	17 UJ	19 U	17 U	17 UJ	19 U	19 U	19 U	17 U	17 U

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Station ID	IR85-SB06	IR85-SB07	IR85-SB08	IR85-SB09	IR85-SB10	IR85-SB11	IR85-SB12	IR85-SB13	IR85-SB14	IR85	i-SB17
Sample ID	IR85-SB06-2-7-09C	IR85-SB07-2-4-09C	IR85-SB08-2-7-09C	IR85-SB09-2-7-09C	IR85-SB10-4-7-09C	IR85-SB11-2-7-09C		IR85-SB13-2-7-09C	IR85-SB14-2-7-09C	IR85-SB17-6-7-09C	
Sample Date	07/29/09	07/28/09	07/28/09	07/27/09	07/29/09	07/29/09	07/28/09	07/28/09	07/29/09	07/28/09	07/28/09
Chemical Name	01/25/05	01/20/03	01/20/03	01/21/03	01/25/05	01/25/05	01/20/03	01/20/03	01/23/03	01/20/03	01/20/03
Aroclor-1248	17 U	19 UJ	17 UJ	19 U	17 U	17 UJ	19 U	19 U	19 U	17 U	17 U
Aroclor-1254	17 U	19 UJ	17 UJ	19 U	17 U	17 UJ	19 U	19 U	19 U	17 U	17 U
Aroclor-1254 Aroclor-1260	17 U	19 UJ	17 UJ	19 U	17 U	17 UJ	19 U	19 U	19 U	17 U	17 U
beta-BHC	17 U	19 UJ	17 UJ 1.8 U	1.7 U	1,9 U	17 UJ 1.9 U	1.7 U	1.9 U	1.9 U	1,9 U	2 U
delta-BHC	1.8 U	1.9 U	1.8 U	1.7 U	1.9 U	1.9 U	1.7 U	1.9 U	1.9 U	1.9 U	2 U
Dieldrin	1.8 U	1.9 U	1.8 U	1.7 U	1.9 U	1.9 U	1.7 U	1.1 J 1.9 U	1.9 U	1.9 U	2 U
Endosulfan I	1.8 U	1.9 U	1.8 U	1.7 U	1.9 U	1.9 U	1.7 U	1.9 U	1.9 U	1.9 U	2 U
Endosulfan II	1.8 U	1.9 U	1.8 U	1.7 U	1.9 U	1.9 U	1.7 U	1.9 U	1.9 U	1.9 U	2 U
Endosulfan sulfate	1.8 U	1.9 U	1.8 U	1.7 U	1.9 U	1.9 U	1.7 U	1.9 U	1.9 U	1.9 U	2 U
Endrin	1.8 U	1.9 U	1.8 U	1.7 U	1.9 U	1.9 U	1.7 U	1.9 U	1.9 U	1.9 U	2 U
Endrin aldehyde	1.8 U	1.9 U	1.8 U	1.7 U	1.9 U	1.9 U	1.7 U	1.9 U	1.9 U	1.9 U	2 U
Endrin ketone	1.8 U	1.9 U	1.8 U	1.7 U	1.9 U	1.9 U	1.7 U	1.9 U	1.9 U	1.9 U	2 U
gamma-BHC (Lindane)	1.8 U	1.9 U	1.8 U	1.7 U	1.9 U	1.9 U	1.7 U	1.9 U	1.9 U	1.9 U	2 U
gamma-Chlordane	1.8 U	1.9 U	1.8 U	1.7 U	1.9 U	1.9 U	1.7 U	1.9 J	1.9 U	1.9 U	2 U
Heptachlor	1.8 U	1.9 U	1.8 U	1.7 U	1.9 U	1.9 U	1.7 U	1.9 U	1.9 U	1.9 U	2 U
Heptachlor epoxide	1.8 U	1.9 U	1.8 U	1.7 U	1.9 U	1.9 U	1.7 U	1.9 U	1.9 U	1.9 U	2 U
Methoxychlor	1.8 U	1.9 U	1.8 U	1.7 U	1.9 U	1.9 U	1.7 U	1.9 U	1.9 U	1.9 U	2 U
Toxaphene	37 U	37 U	36 U	33 U	37 U	37 U	33 U	37 U	37 U	38 U	39 U
Total Metals (mg/kg)											
Aluminum	3,830	6,420	3,750	12,000	4,090	6,230	5,180	6,180	6,260	2,560	4,610
Antimony	1.6 U	1.6 UJ	1.6 U	1.6 U	1.6 UJ	1.6 UJ	1.6 U	1.6 UJ	1.6 UJ	1.6 U	1.7 UJ
Arsenic	1 J	2.3	0.92 J	1.7	0.68 J	1.2 J	1.2 J	1.1 J	1.4 J	0.67 J	1.7 J
Barium	5.8	11.2	6.6	16.2	4.9	8.9	7.4	9	7.9	4 U	6.1
Beryllium	0.16 U	0.16 U	0.024 J	0.072 J	0.16 U	0.16 U	0.037 J	0.16 U	0.033 J	0.16 U	0.17 U
Cadmium	0.49 U	0.47 U	0.47 U	0.48 U	0.48 U	0.49 U	0.47 U	0.47 U	0.48 U	0.48 U	0.5 U
Calcium	81.2 U	79.1 U	79 U	84.8	80.1 U	80.8 U	79 U	78.2 U	16.6 J	80 U	83 U
Chromium	4.5	7.5	4.3	12.5	4.3	6.1	5.6	5.7	6.3 J	3.7	6.2
Cobalt	0.41 U	0.3 J	0.39 U	0.72	0.21 J	0.4 U	0.21 J	0.39 U	0.4 U	0.4 U	0.42 U
Copper	1.3 J	0.99 J	0.89 J	1.6	0.54 J	0.82 J	0.95 J	1 J	0.8 J	0.8 J	1.7
Iron	2,640	4,620	2,010	5,040	1,670	3,790	3,310	3,440	4,050 J+	1,750	2,940
Lead	5.2 131	4.8 219	3.3 125	7.7 424	2.8 149	3.6 201	4.3 158	4.5 208	3.7 202	3 84.5	4.9 165
Magnesium	9.6	6.6	125 31.2	19	149 4.5	201 4.5	158 5.2	5.9	4.5	84.5 3.1	165
Manganese Mercury	9.6 0.17	0.034 U	0.035	0.037 U	0.035 U	0.035 U	0.033 U	0.036 U	0.033 U	0.033 U	0.034 U
Nickel	0.17	1.5	0.035	2.4	0.035 U 0.76 J	0.035 0	1.2	0.036 0	1.1	0.033 U 0.8 U	0.034 U
Potassium	104	164	109	306	123	139	131	137	145	95	165
Selenium	1.6 U	1.6 U	1.6 U	0.47 J	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.7 U
Silver	1.6 U	1.6 U	0.083 J	0.17 J	1.6 U	0.086 J					
Sodium	8.3 J	10.8 J	8.6 J	23.1 J	4.6 J	8.3 J	4.1 J	6.2 J	199 U	3.1 J	5.1 J
Thallium	2.4 U	2.4 U	2.3 U	2.4 U	2.4 U	2.5 U					
Vanadium	7.5 J	13.1 J	6.1 J	16.4	6.1 J	10.4 J	8.4	9.3 J	10.5	4.9 J	9 J
Zinc	23.7	4 U	51.2	6.6	4 U	4 U	6.5	10.6	4 U	27.8	52.9
<u> </u>		· · · ·	J1.L	0.0		1 0	0.0	.0.0			
Wet Chemistry											
pH (ph)	4.3	4.6	4.7	4.6	4.4	4.5	NA	4.6	4.2	4.5	4.5
E V 7											

Notes: Shading indicates detections

NA - Not analyzed

- J Analyte present, value may or may not be accurate or yerise present, value may be biased high, actual value may be lower

 R - Unreliable Result

- U The material was analyzed for, but not detected UJ Analyte not detected, quantitation limit may be inaccurate mg/kg Milligrams per kilogram
- ph pH units
- μg/kg Micrograms per kilogram

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Station ID	IR85-MW01	IR85-MW02	IR85-MW04	IR85-MW05	IR85-TW04	IR85-TW05	IR85	-TW06	IR85-TW07	IR85-TW08
Sample ID	IR85-MW01-09C	IR85-MW02-09C				IR85-TW05-09C		IR85-TW06D-09C	IR85-TW07	IR85-TW08-09C
Sample Date	07/23/09	07/23/09	07/22/09	07/21/09	07/27/09	07/29/09	07/30/09	07/30/09	07/30/09	07/30/09
Chemical Name	01/23/09	01/25/05	01/22/03	01/21/09	01/21/09	01/23/03	01/30/09	01/30/03	01/30/09	01/30/09
Chemical Name										
Volatile Organic Compounds (µg/l)										
1,1,1-Trichloroethane	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U	1 UJ
1,1,2,2-Tetrachloroethane	1 U	1 U	1 U	1 UJ	1 U	2.4 U	2.4 U	2.4 U	2.4 U	1 U
1,1,2-Trichloro-1,2,2-trifluoroethane(Freon-113)	1 U	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U
1,1,2-Trichloroethane	1 U	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U
1,1-Dichloroethane	1 U	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U
1,1-Dichloroethene	1 U	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U	1 UJ
1,2,4-Trichlorobenzene	1 U	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U
1,2-Dibromo-3-chloropropane	2 U	2 U	2 R	2 UJ	2 U	2 U	2 R	2 R	2 R	2 U
1,2-Dibromoethane	1 U	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U
1,2-Dichlorobenzene 1,2-Dichloroethane	1 U 1 U	1 U 1 U	1 U 1 U	1 UJ 1 UJ	1 U 1 U	1 U 1 U	1 U 1 U	1 U 1 U	1 U 1 U	1 U 1 U
1,2-Dichloropernane 1,2-Dichloropropane	1 U	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U
1,3-Dichlorobenzene	1 U	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U
1,4-Dichlorobenzene	1 U	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U
2-Butanone	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U
2-Hexanone	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 UJ
4-Methyl-2-pentanone	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U
Acetone	5 UJ	5 UJ	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U
Benzene	1 U	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U	1 UJ
Bromodichloromethane	1 U	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U
Bromoform	1 U	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U
Bromomethane	1 U	1 U	1 U	1 UJ	1.1 U	1.1 R	1.1 U	1.1 U	1.1 U	1 UJ
Carbon disulfide Carbon tetrachloride	1 U 1 U	1 U 1 U	1 U 1 U	1 UJ 1 UJ	1 U 1 U	1 U 1 U	1 U 1 U	1 U 1 U	1 U 1 U	1 UJ 1 U
Chlorobenzene	1 U	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U
Chloroethane	1 U	1 U	1 U	1 UJ	1 U	1 R	1 UJ	1 UJ	1 UJ	1 U
Chloroform	1 U	6.2	1 U	11 J	1 U	1 U	1 U	1 U	1 U	2.2 UJ
Chloromethane	1 U	1 U	1 U	1 UJ	1 U	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ
cis-1,2-Dichloroethene	1 U	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U
cis-1,3-Dichloropropene	1 U	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U
Cyclohexane	1 U	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U	1 UJ
Dibromochloromethane	1 U	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U
Dichlorodifluoromethane (Freon-12)	1 UJ	1 UJ	1 U	1 UJ	1 U	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ
Ethylbenzene	1 U	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U
Isopropylbenzene Methyl acetate	1 U 1 U	1 U 1 U	1 U 1 U	1 UJ 1 UJ	1 U 1 U	1 U 1 U	1 U 1 U	1 U 1 U	1 U 1 U	1 UJ 1 U
Methylcyclohexane	1 U	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U	1 UJ
Methylene chloride	1 U	1 U	1 UJ	1 UJ	1 U	1 U	190	190	1 U	14 J
Methyl-tert-butyl ether (MTBE)	1 U	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U	1 UJ
Styrene	1 U	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U
Tetrachloroethene	1 U	1 U	1 U	1 UJ	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1 U
Toluene	1 U	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U	1 UJ
trans-1,2-Dichloroethene	1 U	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U
trans-1,3-Dichloropropene	1 U	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U
Trichloroethene	1 U	1 U	1 U	1 UJ	5.1 U	5.1 U	5.1 U	5.1 U	5.1 U	1 UJ
Trichlorofluoromethane(Freon-11)	1 U	1 U	1 U	1 UJ	1 U	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ
Vinyl chloride Xylene, total	1 U 1 U	1 U 1 U	1 U 1 U	1 UJ 1 UJ	1 U 1.2 U	1 U 1.2 U	1 U 1.2 U	1 U 1.2 U	1 U 1.2 U	1 UJ 1 UJ
ryiche, iulai	1 0	i U	1 0	1 03	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1 03
Semivolatile Organic Compounds (µg/l)		*								
1,1-Biphenyl	10 U	10 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U	10 U
2,2'-Oxybis(1-chloropropane)	10 U	10 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U	10 U
2,4,5-Trichlorophenol	10 U	10 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U	10 U
2,4-Dichlorophenol	10 U	10 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U	10 U
2,4-Dimethylphenol	10 U	10 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrophenol	20 UJ	21 UJ	21 UJ	20 U	21 UJ	20 U	20 U	20 U	20 U	20 U
2,4-Dinitrotoluene	10 U	10 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U	10 U
2,6-Dinitrotoluene	10 U	10 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U	10 U
2-Chloronaphthalene	10 U	10 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U	10 U

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Station ID	IR85-MW01	IR85-MW02	IR85-MW04	IR85-MW05	IR85-TW04	IR85-TW05	IR85-	·TW06	IR85-TW07	IR85-TW08
Sample ID		IR85-MW02-09C			IR85-TW04-09C	IR85-TW05-09C		IR85-TW06D-09C	IR85-TW07-09C	IR85-TW08-09C
Sample Date	07/23/09	07/23/09	07/22/09	07/21/09	07/27/09	07/29/09	07/30/09	07/30/09	07/30/09	07/30/09
Chemical Name	01120103	01720/03	01722703	01/21/03	01/21/03	01123/03	01/00/03	01700703	01700703	01/30/03
2-Chlorophenol	10 U	10 U	10 U	10 U	11 U	10 U				
2-Methylnaphthalene	10 U	10 U	10 U	10 U	11 U	10 U				
2-Methylphenol	10 U	10 U	10 U	10 U	11 U	10 U				
2-Nitroaniline	10 U	10 U	10 U	10 U	11 U	10 U				
2-Nitrophenol	10 U	10 U	10 U	10 U	11 U	10 U				
3,3'-Dichlorobenzidine	20 UJ	21 UJ	21 UJ	20 U	21 UJ	20 U	20 UJ	20 UJ	20 UJ	20 UJ
3-Nitroaniline	10 U	10 U	10 U	10 U	11 U	10 U				
4,6-Dinitro-2-methylphenol	20 U	21 U	21 U	20 U	21 U	20 U				
4-Bromophenyl-phenylether	10 U	10 U	10 U	10 U	11 U	10 U				
4-Chloro-3-methylphenol	10 U	10 U	10 U	10 U	11 U	10 U				
4-Chloroaniline	10 U	10 U	10 U	10 U	11 U	10 U				
4-Chlorophenyl-phenylether	10 U	10 U	10 U	10 U	11 U	10 U				
4-Methylphenol	20 U	21 U	21 U	20 U	21 U	20 U				
4-Nitroaniline	10 U	10 U	10 U	10 U	11 U	10 U				
4-Nitrophenol	20 U	21 U	21 U	20 U	21 U	20 U				
Acenaphthene	10 U	10 U	10 U	10 U	11 U	10 U				
Acenaphthylene	10 U	10 U	10 U	10 U	11 U	10 U				
Acetophenone	10 U	10 U	10 U	10 U	11 U	10 U				
Anthracene	10 U	10 U	10 U	10 U	11 U	10 U				
Atrazine	20 U	21 U	21 U	20 U	21 U	20 U				
Benzaldehyde	10 UJ	10 UJ	10 UJ	10 UJ	11 R	10 R				
Benzo(a)anthracene	10 U	10 U	10 U	10 U	11 U	10 U				
Benzo(a)pyrene	10 U	10 U	10 U	10 U	11 U	10 U				
Benzo(b)fluoranthene	10 U	10 U	10 U	10 U	11 U	10 U				
Benzo(g,h,i)perylene	10 U	10 U	10 U	10 U	11 U	10 U				
Benzo(k)fluoranthene	10 U	10 U	10 U	10 U	11 U	10 U				
bis(2-Chloroethoxy)methane	10 U	10 U	10 U	10 U	11 U	10 U				
bis(2-Chloroethyl)ether	10 U	10 U	10 U	10 U	11 U	10 U				
bis(2-Ethylhexyl)phthalate	10 U	10 U	10 U	10 U	11 U	10 U				
Butylbenzylphthalate	10 U	10 U	10 U	10 U	11 U	10 U				
Caprolactam	10 U	10 U	10 U	10 U	11 UJ	10 U				
Carbazole	10 U	10 U	10 U	10 U	11 U	10 U				
Chrysene	10 U	10 U	10 U	10 U	11 U	10 U				
Dibenz(a,h)anthracene	10 U	10 U	10 U	10 U	11 U	10 U				
Dibenzofuran	10 U	10 U	10 U	10 U	11 U	10 U				
Diethylphthalate	10 U	10 U	10 U	10 U	11 U	10 U				
Dimethyl phthalate	10 U	10 U	10 U	10 U	11 U	10 U				
Di-n-butylphthalate	20 U	21 U	21 U	20 U	21 U 11 U	20 U	20 U	20 U	20 U	20 U
Di-n-octylphthalate Fluoranthene	10 U 10 U	10 U 10 U	10 U 10 U	10 U 10 U	11 U	10 U 10 U	10 U 10 U	10 U 10 U	10 U 10 U	10 U
Fluorene	10 U	10 U	10 U	10 U	11 U	10 U 10 U				
Hexachlorobenzene	10 U	10 U	10 U	10 U	11 U	10 U				
Hexachlorobutadiene	10 U	10 U	10 U	10 U	11 U	10 U				
Hexachlorocyclopentadiene	10 U	10 U	10 U	10 U	11 U	10 U				
Hexachloroethane	10 U	10 U	10 U	10 U	11 U	10 U				
Indeno(1,2,3-cd)pyrene	10 U	10 U	10 U	10 U	11 U	10 U				
Isophorone	10 U	10 U	10 U	10 U	11 U	10 U				
Naphthalene	10 U	10 U	10 U	10 U	11 U	10 U				
n-Nitroso-di-n-propylamine	10 U	10 U	10 U	10 U	11 U	10 U				
n-Nitrosodiphenylamine	10 U	10 U	10 U	10 U	11 UJ	10 U				
Nitrobenzene	10 U	10 U	10 U	10 U	11 U	10 U				
Pentachlorophenol	20 U	21 U	21 U	20 U	21 U	20 U				
Phenanthrene	10 U	10 U	10 U	10 U	11 U	10 U				
Phenol	10 U	10 U	10 U	10 U	11 U	10 U				
Pyrene	10 U	10 U	10 U	10 U	11 U	10 U				
Pesticide/Polychlorinated Biphenyls (μg/l)										
4,4'-DDD	0.051 U	0.052 U	0.078 U	0.05 U	0.05 U	0.05 U	0.079 J	0.05 U	0.05 U	0.05 U
4,4'-DDE	0.051 U	0.052 U	0.078 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
4,4'-DDT Aldrin	0.051 U 0.051 U	0.052 U 0.052 U	0.078 U 0.078 U	0.05 U 0.05 U						

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Station ID	IDOC MANOA	IDOE MANOO	IDOE MANOA	IDOE MANOE	IDOS TWO	IDOE TWO	IDOS	TMOC	IDOC TWO	IDOE TWO
Sample ID	IR85-MW01	IR85-MW02 IR85-MW02-09C	IR85-MW04	IR85-MW05 IR85-MW05-09C	IR85-TW04 IR85-TW04-09C	IR85-TW05 IR85-TW05-09C		-TW06 IR85-TW06D-09C	IR85-TW07 IR85-TW07-09C	IR85-TW08 IR85-TW08-09C
	+									
Sample Date	07/23/09	07/23/09	07/22/09	07/21/09	07/27/09	07/29/09	07/30/09	07/30/09	07/30/09	07/30/09
Chemical Name										
alpha-BHC	0.051 U	0.052 U	0.078 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
alpha-Chlordane	0.051 U	0.052 U	0.078 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Aroclor-1016	0.51 U	0.51 U	0.78 U	0.5 U	0.53 U	0.5 U	0.5 UJ	0.5 UJ	0.5 U	0.5 UJ
Aroclor-1221	0.51 U	0.51 U	0.78 U	0.5 U	0.53 U	0.5 U	0.5 UJ	0.5 UJ	0.5 U	0.5 UJ
Aroclor-1232	0.51 U	0.51 U	0.78 U	0.5 U	0.53 U	0.5 U	0.5 UJ	0.5 UJ	0.5 U	0.5 UJ
Aroclor-1242	0.51 U	0.51 U	0.78 U	0.5 U	0.53 U	0.5 U	0.5 UJ	0.5 UJ	0.5 U	0.5 UJ
Aroclor-1248	0.51 U	0.51 U	0.78 U	0.5 U	0.53 U	0.5 U	0.5 UJ	0.5 UJ	0.5 U	0.5 UJ
Aroclor-1254	0.51 U	0.51 U	0.78 U	0.5 U	0.53 U	0.5 U	0.5 UJ	0.5 UJ	0.5 U	0.5 UJ
Aroclor-1260	0.51 U	0.51 U	0.78 U	0.5 U	0.53 U	0.5 U	0.5 UJ	0.5 UJ	0.5 U	0.5 UJ
beta-BHC	0.051 U	0.052 U	0.078 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
delta-BHC	0.051 U	0.052 U	0.078 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Dieldrin	0.051 U	0.052 U	0.078 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Endosulfan I	0.051 U	0.052 U	0.078 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Endosulfan II	0.051 U	0.052 U	0.078 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Endosulfan sulfate	0.051 U 0.051 U	0.052 U 0.052 U	0.078 U 0.078 U	0.05 U 0.05 U	0.05 U 0.05 U	0.05 U 0.05 U	0.05 U 0.05 U	0.05 U 0.05 U	0.05 U 0.05 U	0.05 U 0.05 U
Endrin		0.052 U 0.052 U		0.05 U	0.05 U		0.05 U	0.05 U	0.05 U	
Endrin aldehyde Endrin ketone	0.051 U 0.051 U	0.052 U 0.052 U	0.078 U 0.078 U	0.05 U	0.05 U 0.05 U	0.05 U 0.05 U	0.05 U	0.05 U 0.05 U	0.05 U	0.05 U 0.05 U
gamma-BHC (Lindane)	1	0.052 U					0.05 U			0.05 U
gamma-Chlordane	0.051 U 0.051 U	0.052 U	0.078 U 0.078 U	0.05 U 0.05 U	0.05 U 0.05 U	0.05 U 0.05 U	0.05 U	0.05 U 0.05 U	0.05 U 0.05 U	0.05 U
Heptachlor	0.051 U	0.052 U	0.078 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Heptachlor epoxide	0.051 U	0.052 U	0.078 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Methoxychlor	0.051 U	0.052 U	0.078 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Toxaphene	1 U	1 U	1.6 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Тохарпене	10	10	1.0 0	10	1 0	1 0	1 0	10	10	1 0
Total Metals (μg/l)	1									
Aluminum	124 J	873 J	560 J	469 J	182 J	110 J	15,100	9,130	148 J	921 J
Antimony	20 U	40 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Arsenic	20 U	2 J	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Barium	50 U	56.9	39.6 J	37 J	24.2 J	41.3 J	50 U	50 U	50 U	50 U
Beryllium	0.11 J	0.27 J	0.17 J	0.11 J	0.098 J	2 U	2 U	2 U	2 U	2 U
Cadmium	6 U	6 U	0.14 J	6 U	6 U	0.16 J	6 U	6 U	6 U	0.28 J
Calcium	569 J	1,330 J	1,960	760 J	579 J	1,130	3,190	3,140	2,200	1,280
Chromium	20 U	20 U	20 U	20 U	20 U	20 U	18.9 J	11.7 J	20 U	1.8 J
Cobalt	5 U	0.67 J	0.78 J	5 U	0.89 J	1.2 J	5 U	5 U	0.64 J	5 U
Copper	20 U	40 U	20 U	20 U	2.4 J	2.4 J	6.8 J	6.2 J	4.1 J	5.6 J
Iron	166	1,050	425	106 J	531	6,380	6,900	4,770	1,110	1,480
Lead	20 U	40 U	2.4 J	20 U	20 U	20 U	15.9 J	12.7 J	20 U	3.7 J
Magnesium	1,350	2,310	445	2,480	836	2,510	2,060	1,540	1,160	379
Manganese	8	22	5.8	4.2 J	9.6	72.5	70.8	66.4	29	36.5
Mercury	0.2 U	0.085 J	0.2 U	0.2 U	0.036 J	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Nickel	1.2 J	3 J	1.5 J	10 U	10 U	19.7	7.9 J	6.6 J	9.5 J	2.2 J
Potassium	498 J	2,180	496 J	650 J	726 J	813 J	1,210	1,010	624 J	656 J
Selenium	20 U	20 U	20 U	20 U	20 U	4.3 J	20 U	20 U	20 U	20 U
Silver	20 U	20 U	20 U	20 U	1.5 J	20 U	20 U	20 U	20 U	20 U
Sodium	6,620	14,900	4,910	5,140	3,070	4,510	26,800	25,700	2,840	13,200
Thallium	30 U	30 U	30 U	30 U	30 U	30 U	30 U	30 U	30 U	30 U
Vanadium	50 U	100 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Zinc	4.4 J	16.6 J	12.6 J	50 U	50 U	30.9 J	48 J	41.1 J	13.7 J	110
Dissolved Metals (µg/l)										
Aluminum, Dissolved	NA	NA	NA	NA	41.2 J	92.7 J	1,000 U	1,000 U	106 J	1,000 U
Antimony, Dissolved	NA	NA	NA	NA	20 U	20 U	20 U	20 U	20 U	20 U
Arsenic, Dissolved	NA	NA	NA	NA	20 U	20 U	20 U	20 U	20 U	20 U
Barium, Dissolved	NA	NA	NA	NA	23.3 J	41.5 J	50 U	50 U	50 U	50 U
Beryllium, Dissolved	NA	NA	NA	NA	2 U	0.13 J	2 U	2 U	2 U	2 U
Cadmium, Dissolved	NA	NA	NA	NA	6 U	6 U	6 U	6 U	6 U	6 U
Calcium, Dissolved	NA	NA	NA	NA	586 J	1,140	1,000 U	1,000 U	2,130	1,000 U
Chromium, Dissolved	NA	NA	NA	NA	20 U	20 U	20 U	20 U	1.4 J	20 U
Cobalt, Dissolved	NA	NA	NA	NA	0.82 J	1.1 J	5 U	5 U	0.76 J	5 U
Copper, Dissolved	NA	NA	NA	NA	20 U	2.6 J	20 U	2.2 J	5.2 J	20 U

CTO-11

Camp Lejeune - Site 85 Validated Groundwater Raw Analytical Results July 2009

Station ID	IR85-MW01	IR85-MW02	IR85-MW04	IR85-MW05	IR85-TW04	IR85-TW05	IDOE	-TW06	IR85-TW07	IR85-TW08
Sample ID	IR85-MW01-09C	IR85-MW02-09C	IR85-MW04-09C	IR85-MW05-09C	IR85-TW04-09C	IR85-TW05-09C	IR85-TW06-09C	IR85-TW06D-09C	IR85-TW07-09C	IR85-TW08-09C
Sample Date	07/23/09	07/23/09	07/22/09	07/21/09	07/27/09	07/29/09	07/30/09	07/30/09	07/30/09	07/30/09
Chemical Name										
Iron, Dissolved	NA	NA	NA	NA	433	6,090	150 U	150 U	1,050	144 J
Lead, Dissolved	NA	NA	NA	NA	20 U	20 U	20 U	20 U	20 U	20 U
Magnesium, Dissolved	NA	NA	NA	NA	817	2,460	250 U	250 U	1,150	130 J
Manganese, Dissolved	NA	NA	NA	NA	9.9	70.1	1.5 J	1.3 J	28.8	15.3
Mercury, Dissolved	NA	NA	NA	NA	0.2 U	0.2 U	0.2 U	0.2 U	0.04 J	0.2 U
Nickel, Dissolved	NA	NA	NA	NA	10 U	19.5	10 U	10 U	9.6 J	1.3 J
Potassium, Dissolved	NA	NA	NA	NA	688 J	852 J	506 J	492 J	559 J	624 J
Selenium, Dissolved	NA	NA	NA	NA	20 U	4.3 J	20 U	20 U	20 U	20 U
Silver, Dissolved	NA	NA	NA	NA	20 U	20 U	20 U	20 U	20 U	20 U
Sodium, Dissolved	NA	NA	NA	NA	2,920	4,660	27,300	26,500	2,800	13,600
Thallium, Dissolved	NA	NA	NA	NA	30 U	30 U	30 U	30 U	30 U	30 U
Vanadium, Dissolved	NA	NA	NA	NA	50 U	50 U	50 U	50 U	50 U	50 U
Zinc, Dissolved	NA	NA	NA	NA	6.8 J	31.5 J	50 U	50 U	13.5 J	49.5 J

Notes: Shading indicates detections

- NA Not analyzed
- J Analyte present, value may or may not be accurate or precise R - Unreliable Result
- U The material was analyzed for, but not detected
- UJ Analyte not detected, quantitation limit may be inaccurate µg/l Micrograms per liter

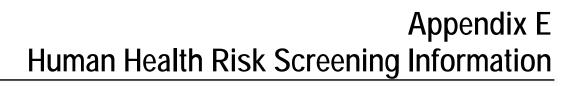


Table 2.1

OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN

Camp Johnson Construction Area MCB Camp Lejeune, North Carolina

Scenario Timeframe: Current/Future

Medium: Surface Soil

Exposure Medium: Surface Soil

Exposure Point	CAS Number	Chemical	Minimum [1] Concentration Qualifier	Maximum [1] Concentration Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Ü	Concentration [2] Used for Screening	0	Screening [4] Toxicity Value				Rationale for [5] Contaminant Deletion or Selection
CJCA	7440-36-0	1	1.8E-01 J-	4.9E-01 J-		CJCA-SS163D-09C	15/214	1.5 - 17.8		4.5E-01	3.1E+00 N			NO	BSL
	7440-38-2 7440-50-8	Copper	2.2E-01 J- 2.6E-01 J-	2.6E+01	MG/KG	CJCA-SS136-09C CJCA-SS033-09C	202/214	0.79 - 8.9	2.6E+01	6.3E-01 4.8E+00	3.9E-01 C* 3.1E+02 N	7.0E+02	NCPSRG NCPSRG	NO NO	ASL BSL
	7439-92-1 7440-66-6		9.6E-01 1.1E+00 J	1.2E+02 1.2E+02		CJCA-SS033-09C CJCA-SS041-09C	214/214 159/214	0.79 - 8.9 1.6 - 17.8	-	1.2E+01 1.1E+01	4.0E+02 NL 2.3E+03 N		NCPSRG NCPSRG	NO NO	BSL BSL

[1] Minimum/Maximum detected concentrations.

[2] Maximum concentration is used for screening.

[3] Background values are two times the arithmetic mean basewide background surface soil concentrations. Background values are from Final Base Background Soil Study Report, Marine Corps Base Camp Lejeune, North Carolina, Baker Environmental, April 25, 2001.

[4] Oak Ridge National Laboratory (ORNL). May 17, 2010. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. http://epa-prgs.ornl.gov/chemicals/index.shtml. Adjusted (noncarcinogenic RSLs adjusted by dividing by 10) residential soil RSLs.

[5] Rationale Codes

Selection Reason: Above Screening Levels (ASL)

Deletion Reason: No Toxicity Information (NTX)

Essential Nutrient (NUT)

Essential Nutrient (NUT)
Below Screening Level (BSL)

COPC = Chemical of Potential Concern

ARAR/TBC = Applicable or Relevant and Appropriate Requirement/

To Be Considered

NCPSRG = North Carolina Preliminary Soil Remediation Goal, January, 2010

J = Estimated Value

J- = Analyte present. Value may be biased low, actual value may be higher.

C = Carcinogenic

C* = N screening level < 100x C screening level, therefore

N screening value/10 used as screening level

C** = N screening level < 10x C screening level, therefore

N screening value/10 used as screening level

MG/KG = Milligrams per kilogram

N = Noncarcinogenic

N/A = Not available/not applicable

NL = Noncarcinogenic lead residential soil RSL not adjusted by dividing by 10.

TABLE 2.1a

Risk Ratio Screening for Surface Soil, Maximum Detected Concentration Camp Johnson Construction Area MCB Camp Lejeune, North Carolina

Analyte	Detection Frequency	Detected	Sample Location of Maximum Detected Concentration	Residential Soil	Acceptable Risk Level	Corresponding Hazard Index ^a	Corresponding Cancer Risk ^b	Target Organ
Metals (mg/kg)								
Arsenic	202 / 214	6.9E+00	CJCA-SS136-09C	3.9E-01	1E-06	NA	2E-05	NA
Cumulative Corresponding Hazard Index ^c	·					NA		
Cumulative Corresponding Cancer Risk ^a							2E-05	

Notes:

- ^a Corresponding Hazard Index equals maximum detected concentration divided by the RSL divided by the acceptable risk level.
- ^b Corresponding Cancer Risk equals maximum detected concentration divided by the RSL divided by the acceptable risk level.
- ^c Cumulative Corresponding Hazard Index equals sum of Corresponding Hazard Indices for each constituent.
- ^d Cumulative Corresponding Cancer Risk equals sum of Corresponding Cancer Risks for each constituent.

Constituent selected as COPC if it contributes to an overall Hazard Index by target organ greater than 0.5 or Cumulative Corresponding Cancer Risk greater than 5E-05, otherwise, constituent not selected as COPC.

Constituents selected as COPCs are indicated by shading.

COPC = Chemical of Potential Concern HI = Hazard Index mg/kg = milligrams per kilogram NA = Not available/not applicable

Table 2.2

OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN

Camp Johnson Construction Area MCB Camp Lejeune, North Carolina

Scenario Timeframe: Future

Medium: Surface and Subsurface Soil

Exposure Medium: Surface and Subsurface Soil

Exposure Point	CAS Number	Chemical	Minimum [1] Concentration Qualifier	Maximum [1] Concentration Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Ŭ	Concentration [2] Used for Screening		Screening [4] Toxicity Value				Rationale for [5] Contaminant Deletion or Selection
CJCA	7440-36-0	Antimony	1.8E-01 J-	4.9E-01 J-	MG/KG	CJCA-SS163D-09C	16/292	1.5 - 17.8	4.9E-01	3.6E-01	3.10E+00 N	N/A		NO	BSL
	7440-38-2 7440-50-8		1.7E-01 J 2.6E-01 J-	4.7E+01 J- 2.6E+01	MG/KG MG/KG	CJCA-SB71-6-7-09C CJCA-SB09D-2-4-09C	271/292 277/292	1.5 - 17.8 1.5 - 17.8	4.7E+01 2.6E+01	6.3E-01 2.6E+00	3.90E-01 C* 3.10E+02 N	5.8E+00 7.0E+02	NCPSRG NCPSRG	YES NO	ASL BSL
	7439-92-1 7440-66-6		9.6E-01 1.1E+00 J	1.2E+02 1.2E+02	MG/KG MG/KG		292/292 209/292	1.5 - 17.8 1.6 - 17.8	1.2E+02 1.2E+02	8.5E+00 6.6E+00	4.00E+02 NL 2.30E+03 N	2.7E+02 1.2E+03	NCPSRG NCPSRG	NO NO	BSL BSL

- [1] Minimum/Maximum detected concentrations.
- [2] Maximum concentration is used for screening.
- [3] Background values are lower of two times the arithmetic mean basewide background surface soil or subsurface soil concentrations.

Background values are from Final Base Background Soil Study Report, Marine Corps Base Camp Lejeune, North Carolina, Baker Environmental, April 25, 2001.

- [4] Oak Ridge National Laboratory (ORNL). May 17, 2010. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. http://epa-prgs.ornl.gov/chemicals/index.shtml. Adjusted (noncarcinogenic RSLs adjusted by dividing by 10) residential soil RSLs.
- [5] Rationale Codes

Selection Reason: Above Screening Levels (ASL)
Deletion Reason: No Toxicity Information (NTX)

Essential Nutrient (NUT)
Below Screening Level (BSL)

COPC = Chemical of Potential Concern

ARAR/TBC = Applicable or Relevant and Appropriate Requirement/

To Be Considered

NCPSRG = North Carolina Preliminary Soil Remediation Goal, January, 2010

J = Estimated Value

J- = Analyte present. Value may be biased low, actual value may be higher.

C = Carcinogenic

 $C^* = N$ screening level < 100x C screening level, therefore

N screening value/10 used as screening level

 C^{**} = N screening level < 10x C screening level, therefore

N screening value/10 used as screening level

MG/KG = milligrams per kilogram

N = Noncarcinogenic

N/A = Not available/not applicable

NL = Noncarcinogenic lead residential soil RSL not adjusted by dividing by 10.

TABLE 2.2a

Risk Ratio Screening for Surface and Subsurface Soil, Maximum Detected Concentration Camp Johnson Construction Area MCB Camp Lejeune, North Carolina

Analyte	Detection Frequency	Detected	Sample Location of Maximum Detected Concentration	Residential Soil	Acceptable Risk Level	Corresponding Hazard Index ^a	Corresponding Cancer Risk ^b	Target Organ
Metals (mg/kg)								
Arsenic	271 / 292	4.7E+01 J-	CJCA-SS136-09C	3.9E-01	1E-06	NA	1E-04	NA
Cumulative Corresponding Hazard Index ^c		<u> </u>				NA		
Cumulative Corresponding Cancer Risk ^a							1E-04	

Notes:

Constituent selected as COPC if it contributes to an overall Hazard Index by target organ greater than 0.5 or Cumulative Corresponding Cancer Risk greater than 5E-05, otherwise, constituent not selected as COPC.

Constituents selected as COPCs are indicated by shading.

COPC = Chemical of Potential Concern

HI = Hazard Index

J- = Analyte present. Value may be biased low, actual value may be higher

mg/kg = milligrams per kilogram

NA = Not available/not applicable.

^a Corresponding Hazard Index equals maximum detected concentration divided by the RSL divided by the acceptable risk level.

^b Corresponding Cancer Risk equals maximum detected concentration divided by the RSL divided by the acceptable risk level.

^c Cumulative Corresponding Hazard Index equals sum of Corresponding Hazard Indices for each constituent.

^d Cumulative Corresponding Cancer Risk equals sum of Corresponding Cancer Risks for each constituent.

TABLE 2.2b

Risk Ratio Screening for Surface and Subsurface Soil, 95% UCL Concentration Camp Johnson Construction Area MCB Camp Lejeune, North Carolina

Analyte	Detection Frequency	95% UCL	95% UCL Rationale	Residential Soil RSL	Acceptable Risk Level	Corresponding Hazard Index ^a	Corresponding Cancer Risk ^b	Target Organ
Metals (mg/kg)								
Arsenic	271 / 292	3.9E+00 4	95% KM-c	3.9E-01	1E-06	NA	1E-05	NA
Cumulative Corresponding Hazard Index ^c						NA		
Cumulative Corresponding Cancer Risk ^a							1E-05	

Notes:

- ^a Corresponding Hazard Index equals 95% UCL concentration divided by the RSL divided by the acceptable risk level.
- ^b Corresponding Cancer Risk equals 95% UCL concentration divided by the RSL divided by the acceptable risk level
- ^c Cumulative Corresponding Hazard Index equals sum of Corresponding Hazard Indices for each constituent.
- ^d Cumulative Corresponding Cancer Risk equals sum of Corresponding Cancer Risks for each constituent.

Constituent selected as COPC if it contributes to an overall Hazard Index by target organ greater than 0.5 or Cumulative Corresponding Cancer Risk greater than 5E-05, otherwise, constituent not selected as COPC.

Constituents selected as COPCs are indicated by shading.

COPC = Chemical of Potential Concern mg/kg = milligrams per kilogram HI = Hazard Index

NA = Not available/not applicable.

ProUCL, Version 4.00.05 used to determine distribution of data and calculate 95% UCL, following recommendations in users guide (USEPA. May 2010. ProUCL, Version 4.0. Prepared by Lockheed Martin Environmental Services). Options: 95% Kaplan-Meier (Chebyshev) UCL (95% KM-c)

Upper Confidence Limit (UCL) Rationale:

- (1) Shapiro-Wilk W Test/Lilliefors test indicates data are log-normally distributed.
- (2) Shapiro-Wilk W Test/Lilliefors indicates data are normally distributed.
- (3) Test indicates data are gamma distributed.
- (4) Distribution tests are inconclusive
- (5) Max value used because 95% UCL greater than max.

Table 2.3

OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN

Camp Johnson Construction Area MCB Camp Lejeune, North Carolina

Scenario Timeframe: Future Medium: Groundwater Exposure Medium: Groundwater

Exposure Point	CAS Number	Chemical	Minimum [1] Concentration Qualifier	Maximum [1] Concentration Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration [2] Used for Screening		Screening [4] Toxicity Value				Rationale for [5] Contaminant Deletion or Selection
CJCA	7440-36-0 7440-38-2		ND 2.2E+00 J		UG/L UG/L	CJCA-TW27-09C	0/37 12/37	20 - 100 20 - 20	1.0E+02 9.4E+00	3.3E+00 5.8E+00	1.5E+00 N 4.5E-02 C		MCL MCL, 15A NCAC 2L	YES YES	DLASL ASL
	7440-50-8	Copper	2.7E+00 J	1.0E+01 J	UG/L	CJCA-TW17-09C	12/37	20 - 100	1.0E+01	2.8E+00	1.5E+02 N	1.3E+03 1.0E+03	MCL 15A NCAC 2L	NO	BSL
	7439-92-1 7440-66-6		2.0E+00 J 4.3E+00 J		UG/L UG/L	CJCA-TW01-09C CJCA-TW17-09C	12/37 36/37	20 - 100 50 - 250	1.9E+01 1.6E+02	2.8E+00 4.2E+01	N/A 1.1E+03 N	1.5E+01 1.0E+03	MCL, 15A NCAC 2L 15A NCAC 2L	YES NO	ASL BSL

[1] Minimum/Maximum detected concentrations.

[2] Maximum concentration is used for screening. If the chemical was not detected, the maximum detection limit is used for screening.

[3] Background values are two times the arithmetic mean basewide background shallow groundwater concentrations. Background values are from

Final Base Background Soil Study Report, Marine Corps Base Camp Lejeune, North Carolina, Baker Environmental, April 25, 2001.

[4] Oak Ridge National Laboratory (ORNL). May 17, 2010. Regional Screening Levels for Chemical Contaminants at Superfund Sites. http://epa-prgs.ornl.gov/chemicals/index.shtml. Adjusted (noncarcinogenic RSLs adjusted by dividing by 10) tap water RSLs.

[5] Rationale Codes

Selection Reason: Above Screening Levels (ASL)

Detection Limit Above Screening Level (DLASL), not quantitatively evaluated in HHRA

Deletion Reason: No Toxicity Information (NTX)

Essential Nutrient (NUT)
Below Screening Level (BSL)

Detection Limit Below Screening Level (DLBSL)

COPC = Chemical of Potential Concern

ARAR/TBC = Applicable or Relevant and Appropriate Requirement/

To Be Considered

MCL = Maximum Contaminant Level from EPA's National Primary Drinking Water Standards

15A NCAC 2L = North Carolina Classifications and Groundwater Quality Standards,

January 2010.

J = Estimated Value

C* = N screening level < 100x C screening level, therefore

N screening value/10 used as screening level

C** = N screening level < 10x C screening level, therefore

N screening value/10 used as screening level

N = Noncarcinogenic

N/A = Not available

ND = Not detected

UG/L = Micrograms per liter

Generated by: Roni Warren/WDC Checked by: Geanine Howard-Peebles/DAY

Updated by: D. Stannard/WDC Checked by: R. Warren

TABLE 2.3a

Risk Ratio Screening for Groundwater, Maximum Detected Concentration Camp Johnson Construction Area MCB Camp Lejeune, North Carolina

Analyte	Detection Frequency	I)etected	Sample Location of Maximum Detected Concentration	Tap Water RSL	Acceptable Risk Level	Corresponding Hazard Index ^a	Corresponding Cancer Risk ^b	Target Organ
Metals (ug/L)								
Arsenic	12 / 37	9.4E+00 J	CJCA-TW27-09C	4.5E-02	1E-06	NA	2E-04	NA
Lead	12 / 37	1.9E+01 J	CJCA-TW01-09C	NA		NA	NA	·
Cumulative Corresponding Hazard Index ^c						NA		
Cumulative Corresponding Cancer Risk ^a							2E-04	

Notes:

Constituent selected as COPC if it contributes to an overall Hazard Index by target organ greater than 0.5 or Cumulative Corresponding Cancer Risk greater than 5E-05, otherwise, constituent not selected as COPC.

Constituents selected as COPCs are indicated by shading.

COPC = Chemical of Potential Concern

HI = Hazard Index

J = Estimated Value

ug/L = micrograms per liter

NA = Not available/not applicable

^a Corresponding Hazard Index equals maximum detected concentration divided by the RSL divided by the acceptable risk level.

^b Corresponding Cancer Risk equals maximum detected concentration divided by the RSL divided by the acceptable risk level.

^c Cumulative Corresponding Hazard Index equals sum of Corresponding Hazard Indices for each constituent.

 $^{^{\}rm d} \ {\rm Cumulative} \ {\rm Corresponding} \ {\rm Cancer} \ {\rm Risk} \ {\rm equals} \ {\rm sum} \ {\rm of} \ {\rm Corresponding} \ {\rm Cancer} \ {\rm Risks} \ {\rm for} \ {\rm each} \ {\rm constituent}.$

TABLE 2.3b

Risk Ratio Screening for Groundwater, 95% UCL Concentration Camp Johnson Construction Area MCB Camp Lejeune, North Carolina

Analyte	Detection Frequency	95%	UCL	95% UCL Rationale	Tap Water RSL	Acceptable Risk Level	Corresponding Hazard Index ^a	Corresponding Cancer Risk ^b	Target Organ
Metals (ug/L)									
Arsenic	12 / 37	5.0E+00	95% KM-t	1, 3	4.5E-02	1E-06	NA	1E-04	NA
Lead	12 / 37	8.9E+00	Mean	6	NA		NA	NA	
Cumulative Corresponding Hazard Index ^c	·		<u> </u>			·	NA		
Cumulative Corresponding Cancer Risk ^a								1E-04	

Notes:

^a Corresponding Hazard Index equals 95% UCL concentration divided by the RSL divided by the acceptable risk level.

Constituent selected as COPC if it contributes to an overall Hazard Index by target organ greater than 0.5 or Cumulative Corresponding Cancer Risk greater than 5E-05,

otherwise, constituent not selected as COPC.

Constituents selected as COPCs are indicated by shading.

COPC = Chemical of Potential Concern

HI = Hazard Index

NA = Not available/not applicable

ug/L = micrograms per liter

ProUCL, Version 4.00.05 used to determine distribution of data and calculate 95% UCL, following recommendations in users guide (USEPA. May 2010. ProUCL, Version 4.0. Prepared by Lockheed Martin Environmental Services).

Options: 95% Kaplan-Meier (t) UCL (95% KM-t); Arithmetic Mean (Mean)

Upper Confidence Limit (UCL) Rationale:

- (1) Shapiro-Wilk W Test/Lilliefors test indicates data are log-normally distributed.
- (2) Shapiro-Wilk W Test/Lilliefors indicates data are normally distributed.
- (3) Test indicates data are gamma distributed.
- (4) Distribution tests are inconclusive
- (5) Max value used because 95% UCL greater than max.
- (6) Lead evaluated using arithmetic mean concentration in lead models, therefore, arithmetic mean concentration presented here.

^b Corresponding Cancer Risk equals 95% UCL concentration divided by the RSL divided by the acceptable risk level

^c Cumulative Corresponding Hazard Index equals sum of Corresponding Hazard Indices for each constituent.

^d Cumulative Corresponding Cancer Risk equals sum of Corresponding Cancer Risks for each constituent.

Scenario Timeframe: Current/Future Medium: Surface Soil

Exposure Medium: Surface Soil

Exposure Point	CAS Number	Chemical	Minimum [1] Concentration Qualifier	Maximum [1] Concentration Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration [2] Used for Screening	Background [3] Value	Screening [4] Toxicity Value	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for [5] Contaminant Deletion or Selection
Site 15	71-55-6	1,1,1-Trichloroethane	ND	ND	MG/KG		0/12	0.0042 - 0.0091	9.1E-03	N/A	6.4E+02 NS	1.2E+00	NCPSRG	NO	DLBSL
	79-34-5	1,1,2,2-Tetrachloroethane	ND	ND	MG/KG		0/12	0.0042 - 0.0091	9.1E-03	N/A	5.6E-01 C	1.2E-03	NCPSRG	NO	DLBSL
	76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane(Freon-113)	ND	ND	MG/KG		0/12	0.0042 - 0.0091	9.1E-03	N/A	9.1E+02 NS	9.2E+03	NCPSRG	NO	DLBSL
	79-00-5	1,1,2-Trichloroethane	ND	ND	MG/KG		0/12	0.0042 - 0.0091	9.1E-03	N/A	1.1E+00 C	N/A		NO	DLBSL
	75-34-3	1,1-Dichloroethane	ND	ND	MG/KG		0/12	0.0042 - 0.0091	9.1E-03	N/A	3.3E+00 C	3.0E-02	NCPSRG	NO	DLBSL
	75-35-4	1,1-Dichloroethene	ND	ND	MG/KG		0/12	0.0042 - 0.0091	9.1E-03	N/A	2.4E+01 N	4.6E-02	NCPSRG	NO	DLBSL
	120-82-1	1,2,4-Trichlorobenzene	ND	ND	MG/KG		0/12	0.0042 - 0.0091	9.1E-03	N/A	6.2E+00 C**	2.2E+00	NCPSRG	NO	DLBSL
	96-12-8	1,2-Dibromo-3-chloropropane	ND	ND	MG/KG		0/12	0.0042 - 0.0091	9.1E-03	N/A	5.4E-03 C	2.5E-04	NCPSRG	YES	DLASL
	106-93-4	1,2-Dibromoethane	ND	ND	MG/KG		0/12	0.0042 - 0.0091	9.1E-03	N/A	3.4E-02 C	9.7E-05	NCPSRG	NO	DLBSL
	95-50-1	1,2-Dichlorobenzene	ND	ND	MG/KG		0/12	0.0042 - 0.0091	9.1E-03	N/A	1.9E+02 N	2.4E-01	NCPSRG	NO	DLBSL
	107-06-2	1,2-Dichloroethane	ND	ND	MG/KG		0/12	0.0042 - 0.0091	9.1E-03	N/A	4.3E-01 C	2.0E-03	NCPSRG	NO	DLBSL
	78-87-5	1,2-Dichloropropane	ND	ND	MG/KG		0/12	0.0042 - 0.0091	9.1E-03	N/A	8.9E-01 C*	3.3E-03	NCPSRG	NO	DLBSL
	541-73-1	1,3-Dichlorobenzene	ND	ND	MG/KG		0/12	0.0042 - 0.0091	9.1E-03	N/A	2.4E+00 C	N/A		NO	DLBSL
	106-46-7	1,4-Dichlorobenzene	ND	ND	MG/KG		0/12	0.0042 - 0.0091	9.1E-03	N/A	2.4E+00 C	7.0E-02	NCPSRG	NO	DLBSL
	78-93-3	2-Butanone	4.4E-03 J	4.0E-02 J	MG/KG	IR15-SS08-00-01-09C	7/12	0.0085 - 0.018	4.0E-02	N/A	2.8E+03 N	1.6E+01	NCPSRG	NO	BSL
	591-78-6	2-Hexanone	ND	ND	MG/KG		0/12	0.0085 - 0.018	1.8E-02	N/A	2.1E+01 N	1.2E+00	NCPSRG	NO	DLBSL
	108-10-1	4-Methyl-2-pentanone	ND	ND	MG/KG		0/12	0.0085 - 0.018	1.8E-02	N/A	5.3E+02 N	N/A		NO	DLBSL
	67-64-1	Acetone	5.3E-03 J	1.7E+00 J	MG/KG	IR15-SS08-00-01-09C	12/13	0.0085 - 0.036	1.7E+00	N/A	6.1E+03 N	2.4E+01	NCPSRG	NO	BSL
	71-43-2	Benzene	ND	ND	MG/KG		0/12	0.0042 - 0.0091	9.1E-03	N/A	1.1E+00 C*	7.3E-02	NCPSRG	NO	DLBSL
	75-27-4	Bromodichloromethane	ND	ND	MG/KG		0/12	0.0042 - 0.0091	9.1E-03	N/A	2.7E-01 C	2.9E-03	NCPSRG	NO	DLBSL
	75-25-2	Bromoform	ND	ND	MG/KG		0/12	0.0042 - 0.0091	9.1E-03	N/A	6.1E+01 C*	1.9E-02	NCPSRG	NO	DLBSL
	74-83-9	Bromomethane	ND	ND	MG/KG		0/10	0.0054 - 0.012	1.2E-02	N/A	7.3E-01 N	N/A		NO	DLBSL
	75-15-0	Carbon disulfide	ND	ND	MG/KG		0/12	0.0042 - 0.0091	9.1E-03	N/A	8.2E+01 N	3.8E+00	NCPSRG	NO	DLBSL
	56-23-5	Carbon tetrachloride	ND	ND	MG/KG		0/12	0.0042 - 0.0091	9.1E-03	N/A	6.1E-01 C	2.0E-03	NCPSRG	NO	DLBSL
	108-90-7	Chlorobenzene	ND	ND	MG/KG		0/12	0.0042 - 0.0091	9.1E-03	N/A	2.9E+01 N	4.5E-01	NCPSRG	NO	DLBSL
	75-00-3	Chloroethane	ND	ND	MG/KG		0/12	0.0054 - 0.014	1.4E-02	N/A	1.5E+03 N	1.6E+01	NCPSRG	NO	DLBSL
	67-66-3	Chloroform	5.2E-03 J	5.2E-03 J	MG/KG	IR15-SS01-00-01-09C	1/12	0.0042 - 0.0091	5.2E-03	N/A	2.9E-01 C	3.4E-01	NCPSRG	NO	BSL
	74-87-3	Chloromethane	ND	ND	MG/KG	11(10 0001 00 01 000	0/12	0.0054 - 0.014	1.4E-02	N/A	1.2E+01 N	1.5E-02	NCPSRG	NO	DLBSL
	156-59-2	cis-1,2-Dichloroethene	ND	ND	MG/KG		0/12	0.0034 - 0.014	9.1E-03	N/A	7.8E+01 N	3.6E-01	NCPSRG	NO	DLBSL
	10061-01-5	cis-1,3-Dichloropropene	ND	ND	MG/KG		0/12	0.0042 - 0.0091	9.1E-03	N/A	1.7E+00 C*	2.3E-03	NCPSRG	NO	DLBSL
	110-82-7	Cyclohexane	ND	ND	MG/KG		0/12	0.0042 - 0.0091	9.1E-03	N/A	1.7E+00 C	2.3E-03 N/A	1401 0110	NO	DLBSL
	124-48-1	Dibromochloromethane	ND ND	ND ND	MG/KG		0/12	0.0042 - 0.0091	9.1E-03	N/A	6.8E-01 C	1.9E-03	NCPSRG	NO	DLBSL
					MG/KG		0/12						NCPSRG	NO	DLBSL
	75-71-8	Dichlorodifluoromethane (Freon-12)	ND	ND				0.0042 - 0.0091	9.1E-03	N/A	1.8E+01 N	2.9E+01			
	100-41-4	Ethylbenzene	ND	ND	MG/KG		0/12	0.0042 - 0.0091	9.1E-03	N/A	5.4E+00 C	8.1E+00	NCPSRG	NO	DLBSL
	98-82-8 79-20-9	Isopropylbenzene Methyl acetate	ND 4.5E-03 J	ND 2.1E+00	MG/KG MG/KG	IR15-SS08-00-01-09C	0/12 5/13	0.0042 - 0.0091 0.0042 - 0.72	9.1E-03 2.1E+00	N/A N/A	2.1E+02 N 7.8E+03 N	1.3E+00 N/A	NCPSRG	NO NO	DLBSL BSL

Scenario Timeframe: Current/Future

Medium: Surface Soil

Exposure Medium: Surface Soil

Exposure Point	CAS Number	Chemical	Minimum [1] Concentration Qualifier	Maximum [1] Concentration Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration [2] Used for Screening	Background [3] Value	Screening [4] Toxicity Value	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for Contaminant Deletion or Selection	[5]
	108-87-2	Methylcyclohexane	ND	ND	MG/KG		0/12	0.0042 - 0.0091	9.1E-03	N/A	5.7E+01 N	N/A		NO	DLBSL	
	75-09-2	Methylene chloride	ND	ND	MG/KG		0/12	0.0054 - 0.014	1.4E-02	N/A	1.1E+01 C	2.3E-02	NCPSRG	NO	DLBSL	
	1634-04-4	Methyl-tert-butyl ether (MTBE)	ND	ND	MG/KG		0/12	0.0042 - 0.0091	9.1E-03	N/A	4.3E+01 C	8.5E-02	NCPSRG	NO	DLBSL	
	100-42-5	Styrene	ND	ND	MG/KG		0/12	0.0042 - 0.0091	9.1E-03	N/A	6.3E+02 N	9.2E-01	NCPSRG	NO	DLBSL	
	127-18-4	Tetrachloroethene	ND	ND	MG/KG		0/12	0.0042 - 0.0091	9.1E-03	N/A	5.5E-01 C	5.0E-03	NCPSRG	NO	DLBSL	
	108-88-3	Toluene	1.0E-02 J	1.0E-02 J	MG/KG	IR15-SS08-00-01-09C	1/12	0.0042 - 0.0091	1.0E-02	N/A	5.0E+02 N	5.5E+00	NCPSRG	NO	BSL	
	156-60-5	trans-1,2-Dichloroethene	ND	ND	MG/KG		0/12	0.0042 - 0.0091	9.1E-03	N/A	1.5E+01 N	5.1E-01	NCPSRG	NO	DLBSL	
	10061-02-6	trans-1,3-Dichloropropene	ND	ND	MG/KG		0/12	0.0042 - 0.0091	9.1E-03	N/A	1.7E+00 C*	2.3E-03	NCPSRG	NO	DLBSL	
	79-01-6	Trichloroethene	ND	ND	MG/KG		0/12	0.0042 - 0.0091	9.1E-03	N/A	2.8E+00 C	1.8E-02	NCPSRG	NO	DLBSL	
	75-69-4	Trichlorofluoromethane(Freon-11)	ND	ND	MG/KG		0/12	0.0042 - 0.0091	9.1E-03	N/A	7.9E+01 N	2.4E+01	NCPSRG	NO	DLBSL	
	75-01-4	Vinyl chloride	ND	ND	MG/KG		0/12	0.0054 - 0.014	1.4E-02	N/A	6.0E-02 C	1.9E-04	NCPSRG	NO	DLBSL	
	1330-20-7	Xylene, total	ND	ND	MG/KG		0/12	0.0042 - 0.0091	9.1E-03	N/A	6.3E+01 N	6.0E+00	NCPSRG	NO	DLBSL	
	92-52-4	1,1-Biphenyl	ND	ND	MG/KG		0/15	0.17 - 0.4	4.0E-01	N/A	2.1E+02 NS	4.3E+01	NCPSRG	NO	DLBSL	
	108-60-1	2,2'-Oxybis(1-chloropropane)	ND	ND	MG/KG		0/15	0.17 - 0.4	4.0E-01	N/A	4.6E+00 C	N/A		NO	DLBSL	
	95-95-4	2,4,5-Trichlorophenol	ND	ND	MG/KG		0/15	0.17 - 0.4	4.0E-01	N/A	6.1E+02 N	N/A		NO	DLBSL	
	88-06-2	2,4,6-Trichlorophenol	ND	ND	MG/KG		0/5	0.36 - 0.4	4.0E-01	N/A	6.1E+00 C**	N/A		NO	DLBSL	
	120-83-2	2,4-Dichlorophenol	ND	ND	MG/KG		0/15	0.17 - 0.4	4.0E-01	N/A	1.8E+01 N	N/A		NO	DLBSL	
	105-67-9	2,4-Dimethylphenol	ND	ND	MG/KG		0/15	0.17 - 0.4	4.0E-01	N/A	1.2E+02 N	1.4E+00	NCPSRG	NO	DLBSL	
	51-28-5	2,4-Dinitrophenol	ND	ND	MG/KG		0/15	0.17 - 1	1.0E+00	N/A	1.2E+01 N	N/A		NO	DLBSL	
	121-14-2	2,4-Dinitrotoluene	ND	ND	MG/KG		0/15	0.17 - 0.4	4.0E-01	N/A	1.6E+00 C*	N/A		NO	DLBSL	
	606-20-2	2,6-Dinitrotoluene	ND	ND	MG/KG		0/15	0.17 - 0.4	4.0E-01	N/A	6.1E+00 N	N/A		NO	DLBSL	
	91-58-7	2-Chloronaphthalene	ND	ND	MG/KG		0/15	0.17 - 0.4	4.0E-01	N/A	1.8E+02 NS	N/A		NO	DLBSL	
	95-57-8	2-Chlorophenol	ND	ND	MG/KG		0/15	0.17 - 0.4	4.0E-01	N/A	3.9E+01 N	4.1E-03	NCPSRG	NO	DLBSL	
	91-57-6	2-Methylnaphthalene	ND	ND	MG/KG		0/15	0.17 - 0.4	4.0E-01	N/A	3.1E+01 N	1.6E+00	NCPSRG	NO	DLBSL	
		2-Methylphenol	ND	ND	MG/KG		0/15	0.17 - 0.4	4.0E-01	N/A	3.1E+02 N	N/A		NO	DLBSL	
	88-74-4	2-Nitroaniline	ND	ND	MG/KG		0/15	0.17 - 0.4	4.0E-01	N/A	6.1E+01 N	N/A		NO	DLBSL	
	88-75-5	2-Nitrophenol	ND	ND	MG/KG		0/15	0.17 - 0.4	4.0E-01	N/A	3.9E+01 N	N/A		NO	DLBSL	
		3- and 4-Methylphenol	ND	ND	MG/KG		0/5	0.73 - 0.8	8.0E-01	N/A	3.1E+01 N	4.0E-01	NCPSRG	NO	DLBSL	
	91-94-1	3,3'-Dichlorobenzidine	ND	ND	MG/KG		0/15	0.17 - 1	1.0E+00	N/A	1.1E+00 C	N/A		NO	DLBSL	
	99-09-2	3-Nitroaniline	ND	ND	MG/KG		0/15	0.17 - 0.4	4.0E-01	N/A	6.1E+01 N	N/A		NO	DLBSL	
	534-52-1	4,6-Dinitro-2-methylphenol	ND	ND	MG/KG		0/15	0.17 - 1	1.0E+00	N/A	6.1E-01 N	N/A		YES	DLASL	
	101-55-3	4-Bromophenyl-phenylether	ND	ND	MG/KG		0/15	0.17 - 0.4	4.0E-01	N/A	N/A	N/A		NO	NTX	
	59-50-7	4-Chloro-3-methylphenol	ND	ND	MG/KG		0/15	0.17 - 0.4	4.0E-01	N/A	6.1E+02 N	N/A		NO	DLBSL	
	106-47-8	4-Chloroaniline	ND	ND	MG/KG		0/15	0.17 - 0.4	4.0E-01	N/A	2.4E+00 C	N/A		NO	DLBSL	
	7005-72-3	4-Chlorophenyl-phenylether	ND	ND	MG/KG		0/15	0.17 - 0.4	4.0E-01	N/A	3.1E+01 N	N/A		NO	DLBSL	
	106-44-5	4-Methylphenol	ND	ND	MG/KG		0/10	0.17 - 0.21	2.1E-01	N/A	3.1E+01 N	4.0E-01	NCPSRG	NO	DLBSL	
	100-01-6	4-Nitroaniline	ND	ND	MG/KG		0/15	0.17 - 0.4	4.0E-01	N/A	2.4E+01 C*	N/A		NO	DLBSL	

Scenario Timeframe: Current/Future Medium: Surface Soil

Exposure Medium: Surface Soil

Minimum [1] Rationale for Exposure CAS Chemical Maximum [1] Units Location Detection Range of Concentration [2] Background [3] Screening [4] Potential Potential COPC Point Concentration Concentration of Maximum Detection Used for Value Toxicity Value ARAR/TBC ARAR/TBC Flag Contaminant Frequency Qualifier Qualifier Concentration Limits Screening Deletion or Selection 100-02-7 4-Nitrophenol ND ND MG/KG 0/15 0.17 - 1 1.0E+00 N/A 4.8E+00 C* N/A NO DLBSL 83-32-9 Acenaphthene ND ND MG/KG 0/15 0.17 - 0.4 4.0E-01 N/A 3.4E+02 N 8.4E+00 NCPSRG NO DLBSL 208-96-8 Acenaphthylene ND ND MG/KG 0/15 0.17 - 0.4 4.0E-01 N/A 3.4E+02 N 1.1E+01 NCPSRG NO DLBSL MG/KG 7.8E+02 N DLBSL 98-86-2 Acetophenone ND ND 0/15 0.17 - 0.44.0E-01 N/A N/A NO 120-12-7 Anthracene ND ND MG/KG 0/15 0.17 - 0.4 4.0E-01 N/A 1.7E+03 N 6.6E+02 NCPSRG NO DLBSL 1912-24-9 Atrazine ND ND MG/KG 0/15 0.17 - 0.4 4.0E-01 N/A 2.1E+00 C 2.5E-02 NCPSRG NO DLBSL 100-52-7 Benzaldehyde ND ND MG/KG 0/15 0.17 - 1 1.0E+00 N/A 7.8E+02 N N/A NO DLBSL 56-55-3 ND ND MG/KG 0.035 - 0.4 4.0E-01 1.8E-01 YES DLASL Benzo(a)anthracene 0/15 N/A 1.5E-01 C NCPSRG 50-32-8 ND NΠ MG/KG 0/15 0.035 - 0.4 4 0F-01 N/A 1.5E-02 C 5.9E-02 NCPSRG YES DI ASI Benzo(a)pyrene 205-99-2 Benzo(b)fluoranthene ND ND MG/KG 0/15 0.035 - 0.4 4.0E-01 N/A 1.5E-01 C 6.0E-01 NCPSRG YES DLASL 191-24-2 Benzo(g,h,i)perylene 9.5E-02 J 9.5E-02 J MG/KG IR15-SS03D-00-01-09C 1/15 0.17 - 0.4 9.5E-02 N/A 1.7E+02 N 3.6E+02 NCPSRG NO BSL 207-08-9 Benzo(k)fluoranthene ND ND MG/KG 0/15 0.17 - 0.4 4.0E-01 N/A 1.5E+00 C 5.9E+00 NCPSRG NO DLBSL 0.17 - 0.4 DLBSL 111-91-1 MG/KG bis(2-Chloroethoxy)methane ND ND 0/15 4 0F-01 N/A 1.8E+01 N N/A NO 111-44-4 bis(2-Chloroethyl)ether ND ND MG/KG 0/15 0.17 - 0.4 4.0E-01 N/A 2.1E-01 C 1.4E-04 NCPSRG YES DLASL 117-81-7 bis(2-Ethylhexyl)phthalate 8.8E-02 J 1.8E-01 J MG/KG IR15-SS01-00-01-09C 3/15 0.17 - 0.4 1.8E-01 N/A 3.5E+01 C 7.2E+00 NCPSRG NO BSL 85-68-7 Butylbenzylphthalate 1.9E-01 J 1.9E-01 J MG/KG IR15-SS01-00-01-09C 1/15 0.17 - 0.4 1 9F-01 N/A 2 6F+02 C 1.5F+02 NCPSRG NO BSL DLBSL 105-60-2 Caprolactam ND ND MG/KG 0/14 0.17 - 1 1.0E+00 N/A 3.1E+03 N 1.8E+01 NCPSRG NO 86-74-8 Carbazole ND ND MG/KG 0/15 0.17 - 0.4 4.0E-01 N/A N/A N/A NO NTX 218-01-9 1.5E-02 J 2.2E-02 J MG/KG SWMU46-SM01-0-1 0.17 - 0.4 2.2E-02 NCPSRG YES CPAH Chrysene 2/15 N/A 1.5E+01 C 1.8E+01 53-70-3 Dibenz(a.h)anthracene 6.4E-02 J 6.4E-02 J MG/KG IR15-SS03D-00-01-09C 1/15 0.035 - 0.4 6.4E-02 N/A 1.5E-02 C 1.9E-01 NCPSRG YES ASL 132-64-9 MG/KG 0.17 - 0.4 4.0E-01 NCPSRG NO DLBSL Dibenzofuran ND ND 0/15 N/A 7.8E+00 N 4.7E+00 MG/KG 84-66-2 Diethylphthalate ND ND 0/15 0.17 - 0.4 4.0E-01 N/A 4.9E+03 N 3.7E+01 NCPSRG NO DLBSL 131-11-3 ND ND MG/KG 0.17 - 0.4 4.0E-01 N/A NO NTX Dimethyl phthalate 0/15 84-74-2 Di-n-butylphthalate 5.0E-02 J 1.5E-01 J MG/KG IR15-SS10-00-01-09C 6/15 0.17 - 0.4 1.5E-01 N/A 6.1E+02 N 1.9E+01 NCPSRG NO BSL 117-84-0 Di-n-octylphthalate ND ND MG/KG 0/15 0.17 - 0.4 4.0E-01 N/A 3.5E+01 C* 3.8E+01 NCPSRG NO DLBSL 206-44-0 MG/KG 0/15 0.17 - 0.4 NCPSRG DLBSL Fluoranthene ND ND 4.0E-01 N/A 2.3E+02 N 3.3E+02 NO 86-73-7 Fluorene ND ND MG/KG 0/15 0.17 - 0.4 4.0E-01 N/A 2.3E+02 N 5.6E+01 NCPSRG NO DLBSL 118-74-1 Hexachlorobenzene ND ND MG/KG 0/15 0.17 - 0.4 4.0E-01 N/A 3.0E-01 C 2.6E-03 NCPSRG YES DLASL 87-68-3 ND ND MG/KG 0/15 0.17 - 0.4 4.0E-01 6.1E+00 C* NCPSRG NO DLBSL Hexachlorobutadiene N/A 8.7E-03 77-47-4 ND ND MG/KG 0/15 0.17 - 1 1.0E+00 3.7E+01 N NO DLBSL Hexachlorocyclopentadiene N/A N/A 67-72-1 -lexachloroethane ND ND MG/KG 0/15 0.17 - 0.4 4.0E-01 N/A 6.1E+00 C* N/A NO DLBSL 193-39-5 Indeno(1,2,3-cd)pyrene 5.2E-02 J 5.2E-02 J MG/KG IR15-SS03D-00-01-09C 1/15 0.035 - 0.4 5.2E-02 N/A 1.5E-01 C 2.0E+00 NCPSRG YES CPAH 78-59-1 ND ND MG/KG 0/15 0.035 - 0.4 4.0E-01 N/A 5.1E+02 C* 2.0E-01 NCPSRG NO DLBSL Isophorone DLBSL 91-20-3 ND MG/KG 0/15 0 17 - 0 4 4 0F-01 N/A 3.6E+00_C* 2 1F-01 NCPSRG NO Nanhthalene ND 621-64-7 n-Nitroso-di-n-propylamine ND ND MG/KG 0/15 0.035 - 0.4 4.0E-01 N/A 6.9E-02 C N/A YES DLASL 86-30-6 n-Nitrosodiphenylamine ND ND MG/KG 0/15 0.17 - 0.4 4.0E-01 N/A 9.9E+01 C N/A NO DLBSL 98-95-3 Nitrobenzene ND ND MG/KG 0/15 0.17 - 0.4 4.0E-01 N/A 4.8E+00 C* N/A NO DLBSL

Scenario Timeframe: Current/Future

Medium: Surface Soil

Exposure Medium: Surface Soil

Exposure Point	CAS Number	Chemical	Minimum [1] Concentration Qualifier	Maximum [1] Concentration Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration [2] Used for Screening	Background [3] Value	Screening [4] Toxicity Value	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for Contaminant Deletion or Selection	[5]
	87-86-5	Pentachlorophenol	ND	ND	MG/KG		0/15	0.17 - 1	1.0E+00	N/A	3.0E+00 C	3.1E-02	NCPSRG	NO	DLBSL	
	85-01-8	Phenanthrene	ND	ND	MG/KG		0/15	0.17 - 0.4	4.0E-01	N/A	1.7E+03 N	5.7E+01	NCPSRG	NO	DLBSL	
	108-95-2	Phenol	ND	ND	MG/KG		0/15	0.17 - 0.4	4.0E-01	N/A	1.8E+03 N	2.3E-01	NCPSRG	NO	DLBSL	
	129-00-0	Pyrene	ND	ND	MG/KG		0/15	0.17 - 0.4	4.0E-01	N/A	1.7E+02 N	2.2E+02	NCPSRG	NO	DLBSL	
	72-54-8	4,4'-DDD	1.3E-03 JP	7.5E-03 J	MG/KG	IR15-SS01-00-01-09C	4/15	0.0017 - 0.0021	7.5E-03	N/A	2.0E+00 C	2.4E-01	NCPSRG	NO	BSL	
	72-55-9	4,4'-DDE	5.6E-04 J	2.5E-02 J	MG/KG	IR15-SS01-00-01-09C	10/15	0.0017 - 0.0021	2.5E-02	N/A	1.4E+00 C	N/A		NO	BSL	
	50-29-3	4,4'-DDT	3.9E-04 J	2.4E-02 J	MG/KG	IR15-SS10-00-01-09C	9/15	0.0017 - 0.0021	2.4E-02	N/A	1.7E+00 C*	3.4E-01	NCPSRG	NO	BSL	
	309-00-2	Aldrin	ND	ND	MG/KG		0/15	0.0017 - 0.0021	2.1E-03	N/A	2.9E-02 C*	N/A		NO	DLBSL	
	319-84-6	alpha-BHC	ND	ND	MG/KG		0/15	0.0017 - 0.0021	2.1E-03	N/A	7.7E-02 C	1.2E-03	NCPSRG	NO	DLBSL	
	5103-71-9	alpha-Chlordane	1.0E-03 J	7.4E-03 J	MG/KG	IR15-SS01-00-01-09C	3/15	0.0017 - 0.0021	7.4E-03	N/A	1.6E+00 C*	6.8E-02	NCPSRG	NO	BSL	
	12674-11-2	Aroclor-1016	ND	ND	MG/KG		0/15	0.017 - 0.021	2.1E-02	N/A	3.9E-01 N	N/A		NO	DLBSL	
	11104-28-2	Aroclor-1221	ND	ND	MG/KG		0/15	0.017 - 0.021	2.1E-02	N/A	1.4E-01 C	N/A		NO	DLBSL	
	11141-16-5	Aroclor-1232	ND	ND	MG/KG		0/15	0.017 - 0.021	2.1E-02	N/A	1.4E-01 C	N/A		NO	DLBSL	
	53469-21-9	Aroclor-1242	ND	ND	MG/KG		0/15	0.017 - 0.021	2.1E-02	N/A	2.2E-01 C	N/A		NO	DLBSL	
	12672-29-6	Aroclor-1248	ND	ND	MG/KG		0/15	0.017 - 0.021	2.1E-02	N/A	2.2E-01 C	N/A		NO	DLBSL	
	11097-69-1	Aroclor-1254	3.6E-01 J	3.6E-01 J	MG/KG	IR15-SS01-00-01-09C	1/15	0.017 - 0.021	3.6E-01	N/A	1.1E-01 C**	N/A		YES	ASL	
	11096-82-5	Aroclor-1260	ND	ND	MG/KG		0/15	0.017 - 0.021	2.1E-02	N/A	2.2E-01 C	N/A		NO	DLBSL	
	319-85-7	beta-BHC	ND	ND	MG/KG		0/15	0.0017 - 0.0021	2.1E-03	N/A	2.7E-01 C	1.2E-03	NCPSRG	NO	DLBSL	
	319-86-8	delta-BHC	ND	ND	MG/KG		0/15	0.0017 - 0.0021	2.1E-03	N/A	2.7E-01 C	1.2E-03	NCPSRG	NO	DLBSL	
	60-57-1	Dieldrin	9.1E-04 J	1.7E-03 J	MG/KG	IR15-SS09-00-01-09C	2/15	0.0017 - 0.0021	1.7E-03	N/A	3.0E-02 C	8.1E-04	NCPSRG	NO	BSL	
	959-98-8	Endosulfan I	ND	ND	MG/KG		0/15	0.0017 - 0.0021	2.1E-03	N/A	3.7E+01 N	5.6E+00	NCPSRG	NO	DLBSL	
	33213-65-9	Endosulfan II	1.1E-03 JP	1.1E-03 JP	MG/KG	SWMU46-SM01-0-1	1/15	0.0017 - 0.0021	1.1E-03	N/A	3.7E+01 N	5.6E+00	NCPSRG	NO	BSL	
	1031-07-8	Endosulfan sulfate	1.6E-02 P	3.8E-02 D	MG/KG	SWMU46-SM03-0-1	4/15	0.0017 - 0.0037	3.8E-02	N/A	3.7E+01 N	5.6E+00	NCPSRG	NO	BSL	
	72-20-8	Endrin	1.7E-03 JP	1.7E-03 JP	MG/KG	SWMU46-SM01-0-1	1/15	0.0017 - 0.0021	1.7E-03	N/A	1.8E+00 N	8.1E-01	NCPSRG	NO	BSL	
	7421-93-4	Endrin aldehyde	ND	ND	MG/KG		0/15	0.0017 - 0.0021	2.1E-03	N/A	1.8E+00 N	8.1E-01	NCPSRG	NO	DLBSL	
	53494-70-5	Endrin ketone	3.8E-03 P	1.8E-02 P	MG/KG	SWMU46-SM05-0-1	4/15	0.0017 - 0.0021	1.8E-02	N/A	1.8E+00 N	8.1E-01	NCPSRG	NO	BSL	
	58-89-9	gamma-BHC (Lindane)	ND	ND	MG/KG		0/15	0.0017 - 0.0021	2.1E-03	N/A	5.2E-01 C*	1.8E-03	NCPSRG	NO	DLBSL	
	5103-74-2	gamma-Chlordane	5.8E-04 J	8.6E-03 J	MG/KG	IR15-SS01-00-01-09C	3/15	0.0017 - 0.0021	8.6E-03	N/A	1.6E+00 C*	6.8E-02	NCPSRG	NO	BSL	
	76-44-8	Heptachlor	ND	ND	MG/KG		0/15	0.0017 - 0.0021	2.1E-03	N/A	1.1E-01 C	6.6E-03	NCPSRG	NO	DLBSL	
	1024-57-3	Heptachlor epoxide	ND	ND	MG/KG		0/15	0.0017 - 0.0021	2.1E-03	N/A	5.3E-02 C*	8.2E-04	NCPSRG	NO	DLBSL	
	72-43-5	Methoxychlor	4.6E-03 J	4.6E-03 J	MG/KG	SWMU46-SM01-0-1	1/15	0.0017 - 0.008	4.6E-03	N/A	3.1E+01 N	2.2E+01	NCPSRG	NO	BSL	
	8001-35-2	Toxaphene	ND	ND	MG/KG		0/15	0.035 - 0.1	1.0E-01	N/A	4.4E-01 C	4.6E-02	NCPSRG	NO	DLBSL	
	7429-90-5	Aluminum	1.2E+03 J+	1.3E+04	MG/KG	IR15-SS03-00-01-09C	10/10	75.3 - 90.9	1.3E+04	5.5E+03	7.7E+03 N	N/A		YES	ASL	
	7440-36-0	Antimony	2.7E-01 J	6.4E-01 J-	MG/KG	IR15-SS01-00-01-09C	4/10	1.5 - 1.8	6.4E-01	4.5E-01	3.1E+00 N	N/A		NO	BSL	
	7440-38-2	Arsenic	2.4E-01 J	4.7E+00	MG/KG	IR15-SS03D-00-01-09C	16/16	0.27 - 1.8	4.7E+00	6.3E-01	3.9E-01 C*	5.8E+00	NCPSRG	YES	ASL	
	7440-39-3	Barium	9.1E-01	3.4E+01	MG/KG	IR15-SS01-00-01-09C IR15-SS03D-00-01-09C:	16/16	1.4 - 4.5	3.4E+01	1.5E+01	1.5E+03 N	5.8E+02	NCPSRG	NO	BSL	
	7440-41-7	Beryllium	3.9E-02 J	1.4E-01 J	MG/KG	IR15-SS03-00-01-09C	5/10	0.15 - 0.18	1.4E-01	1.0E-01	1.6E+01 N	N/A		NO	BSL	

Scenario Timeframe: Current/Future

Medium: Surface Soil

Exposure Medium: Surface Soil

Exposure Point	CAS Number	Chemical	Minimum [1] Concentration Qualifier	Maximum [1] Concentration Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration [2] Used for Screening		0 1 7	Potential ARAR/TBC Value		COPC Flag	Rationale for [5] Contaminant Deletion or Selection
	7440-43-9	Cadmium	1.4E-02 J	6.1E-01	MG/KG	IR15-SS01-00-01-09C	8/16	0.011 - 0.55	6.1E-01	3.3E-02	7.0E+00 N	3.0E+00	NCPSRG	NO	BSL
	7440-70-2	Calcium	9.4E+01	3.7E+04	MG/KG	IR15-SS01-00-01-09C	10/10	75.3 - 90.9	3.7E+04	6.4E+03	N/A	N/A		NO	NUT
	7440-47-3	Chromium	1.4E+00 J	1.7E+01	MG/KG	IR15-SS03D-00-01-09C IR15-SS01-00-01-09C:	16/16	0.27 - 1.8	1.7E+01	6.1E+00	2.9E-01 C	3.8E+00	NCPSRG	YES	ASL
	7440-48-4	Cobalt	6.7E-02 J	5.7E-01	MG/KG	IR15-SS01-00-01-09C :	8/10	0.38 - 0.45	5.7E-01	2.9E-01	2.3E+00 N	N/A		NO	BSL
	7440-50-8	Copper	5.4E-01 J	4.2E+01	MG/KG	IR15-SS01-00-01-09C	10/10	1.5 - 1.8	4.2E+01	4.8E+00	3.1E+02 N	7.0E+02	NCPSRG	NO	BSL
	7439-89-6	Iron	5.6E+02	1.0E+04	MG/KG	IR15-SS03D-00-01-09C	10/10	11.3 - 13.6	1.0E+04	3.2E+03	5.5E+03 N	1.5E+02	NCPSRG	YES	ASL
	7439-92-1	Lead	3.0E+00	7.0E+01	MG/KG	IR15-SS01-00-01-09C	16/16	0.27 - 1.8	7.0E+01	1.2E+01	4.0E+02 NL	2.7E+02	NCPSRG	NO	BSL
	7439-95-4	Magnesium	4.7E+01	8.0E+02	MG/KG	IR15-SS03D-00-01-09C	10/10	18.8 - 22.7	8.0E+02	2.4E+02	N/A	N/A		NO	NUT
	7439-96-5	Manganese	4.6E+00	2.2E+01	MG/KG	IR15-SS01-00-01-09C	10/10	0.38 - 0.45	2.2E+01	1.4E+01	1.8E+02 N	6.5E+01	NCPSRG	NO	BSL
	7439-97-6	Mercury	1.9E-02 J	5.1E-01	MG/KG	IR15-SS01-00-01-09C	6/15	0.033 - 0.1	5.1E-01	8.1E-02	2.3E+00 N	1.0E+00	NCPSRG	NO	BSL
	7440-02-0	Nickel	4.8E-01 J	2.7E+00	MG/KG	IR15-SS01-00-01-09C	10/10	0.75 - 0.91	2.7E+00	1.2E+00	1.6E+02 N	1.3E+02	NCPSRG	NO	BSL
	7440-09-7	Potassium	1.1E+02	5.0E+02	MG/KG	IR15-SS03-00-01-09C	7/10	75.3 - 90.9	5.0E+02	1.2E+02	N/A	N/A		NO	NUT
	7782-49-2	Selenium	2.0E-01 J	5.2E-01	MG/KG	SWMU46-SM08-0-1	7/16	0.27 - 1.8	5.2E-01	5.6E-01	3.9E+01 N	2.1E+00	NCPSRG	NO	BSL, BBK
	7440-22-4	Silver	5.5E-02 J	1.7E-01 J	MG/KG	IR15-SS05-00-01-09C	3/16	0.27 - 1.8	1.7E-01	1.4E-01	3.9E+01 N	3.4E+00	NCPSRG	NO	BSL
	7440-23-5	Sodium	6.7E+00 J	6.9E+01 J	MG/KG	IR15-SS03D-00-01-09C	5/10	188 - 227	6.9E+01	8.1E+01	N/A	N/A		NO	NUT, BBK
	7440-28-0	Thallium	ND	ND	MG/KG		0/10	2.3 - 2.7	2.7E+00	3.6E-01	N/A	N/A		NO	NTX
	7440-62-2	Vanadium	2.2E+00 J	_		IR15-SS03D-00-01-09C	10/10	3.8 - 4.5	2.2E+01	8.9E+00	3.9E+01 N	N/A		NO	BSL
	7440-66-6	Zinc	6.0E+00	1.7E+02	MG/KG	IR15-SS01-00-01-09C	7/10	3.8 - 4.5	1.7E+02	1.1E+01	2.4E+03 N	1.2E+03	NCPSRG	NO	BSL

Table 2.4

OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN

Camp Johnson Site 15

MCB Camp Lejeune, North Carolina

Scenario Timeframe: Current/Future

Medium: Surface Soil
Exposure Medium: Surface Soil

Exposure	CAS	Chemical	Minimum [1]	Maximum [1]	Units	Location	Detection	Range of	Concentration [2]	Background [3]	Screening [4]	Potential	Potential	COPC	Rationale for
Point	Number		Concentration	Concentration		of Maximum	Frequency	Detection	Used for	Value	Toxicity Value	ARAR/TBC	ARAR/TBC	Flag	Contaminant
			Qualifier	Qualifier		Concentration		Limits	Screening		-	Value	Source	_	Deletion
									_						or Selection

- [1] Minimum/Maximum detected concentrations.
- [2] Maximum concentration is used for screening. If the chemical was not detected, the maximum detection limit is used for screening.
- [3] Background values are two times the arithmetic mean basewide background surface soil concentrations.

Background values are from Final Base Background Soil Study Report, Marine Corps Base Camp Lejeune, North Carolina ,

Oak Ridge National Laboratory (ORNL). May 17, 2010. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites.

http://epa-prgs.oml.gov/chemicals/index.shtml. Adjusted (noncarcinogenic RSLs adjusted by dividing by 10) residential soil RSLs.

RSL value for 1,4-Dichlorobenzene used as a surrogate for 1,3-Dichlorobenzene

RSL value for n-Hexane used as surrogate for Methylcyclohexane.

RSL value for p-cresol used as surrogate for 3- and 4-methylphenol.

RSL value for methoxychlor used as surrogate for 4-chlorophenyl-phenylether.

RSL value for 2-Nitroaniline used as surrogate for 3-Nitroaniline.

RSL value for nitrobenzene used as surrogate for 4-nitrophenol.

RSL value for acenaphthene used as surrogate for acenaphthylene.

RSL value for pyrene used as surrogate for benzo(g,h,i)perylene.

RSL value for anthracene used as surrogate for phenanthrene.

RSL value for technical chlordane used as surrogate for alpha-chlordane.

RSL value for technical-HCH used as surrogate for delta-BHC.

RSL value for technical chlordane used as surrogate for gamma-chlordane.

RSL value for 1,3-dichloropropene used as a surrogate for cis-1,3-dichloropropene and trans-1,3-dichloropropene.

RSL value for endosulfan used as surrogate for endosulfan I, endosulfan II, and endosulfan sulfate.

RSL value for endrin used as surrogate for endrin aldehyde and endrin ketone.

RSL value for 2-chlorophenol used as surrogate for 4-chloro-3-methylphenol and 2-nitrophenol.

RSL value for Mercury (inorganic salts) used for mercury.

[5] Rationale Codes

Selection Reason: Above Screening Levels (ASL)

Detection Limit Above Screening Level (DLASL), not quantitatively evaluated in HHRA

Was detected, and other carcinogenic PAHs that were detected were identified as COPCs (cPAH)

Deletion Reason: No Toxicity Information (NTX)

Essential Nutrient (NUT)

Below Screening Level (BSL)

Detection Limit Below Screening Level (DLBSL)

COPC = Chemical of Potential Concern

ARAR/TBC = Applicable or Relevant and Appropriate Requirement/

To Be Considered

NCPSRG = North Carolina Preliminary Soil Remediation Goal, January, 2010

D = Compound identified in an analysis at a secondary dilution factor

J = Estimated Value

J- = Analyte present. Value may be biased low, actual value may be higher.

P = Difference between the concentration on the two columns is greater than 20%

C = Carcinogenic

C* = N screening level < 100x C screening level, therefore

N screening value/10 used as screening level

C** = N screening level < 10x C screening level, therefore

N screening value/10 used as screening level

MG/KG = Milligrams per kilogram

N = Noncarcinogenic

N/A = Not available/not applicable

ND = Non-detect

NL = Noncarcinongenic lead residential soil RSL not adjusted by dividing by 10.

NS = Concentration exceeds Csat (soil saturation concentration),

Csat used as screening level.

TABLE 2.4a

Risk Ratio Screening for Surface Soil, Maximum Detected Concentration Camp Johnson Site 15 MCB Camp Lejeune, North Carolina

Analyte	Detection Frequency	Maximum Detected Concentration (Qualifier)	Sample Location of Maximum Detected Concentration	Residential Soil RSL	Acceptable Risk Level	Corresponding Hazard Index ^a	Corresponding Cancer Risk ^b	Target Organ
Semi-volatile Organic Compounds (mg/kg)								
Chrysene	2 / 15	2.2E-02 J	SWMU46-SM01-0-1	1.5E+01	1E-06	NA	1E-09	NA
Dibenz(a,h)anthracene	1 / 15	6.4E-02 J	IR15-SS03D-00-01-09C	1.5E-02	1E-06	NA	4E-06	NA
Indeno(1,2,3-cd)pyrene	1 / 15	5.2E-02 J	IR15-SS03D-00-01-09C	1.5E-01	1E-06	NA	3E-07	NA
Polychlorinated Biphenyls (mg/kg)								
Aroclor-1254	1 / 15	3.6E-01 J	IR15-SS01-00-01-09C	1.1E-01	1E-06	NA	3E-06	NA
Metals (mg/kg)								
Aluminum	10 / 10	1.3E+04	IR15-SS03-00-01-09C	7.7E+04	1	0.2	NA	Neurological, Developmental
Arsenic	16 / 16	4.7E+00	IR15-SS03D-00-01-09C	3.9E-01	1E-06	NA	1E-05	NA
Chromium	16 / 16	1.7E+01	IR15-SS03D-00-01-09C	2.9E-01	1E-06	NA	6E-05	NA
Iron	10 / 10	1.0E+04	IR15-SS03D-00-01-09C	5.5E+04	1	0.2	NA	Gastrointestinal
Cumulative Corresponding Hazard Index ^c						0.3		
Cumulative Corresponding Cancer Risk ^d							8E-05	
						Total	Developmental HI =	0.2
						Total	Gastrointestinal HI =	0.2
Notes:						To	otal Neurological HI =	0.2

Notes:

Constituent selected as COPC if it contributes to an overall Hazard Index by target organ greater than 0.5 or Cumulative Corresponding Cancer Risk greater than 5E-05, otherwise, constituent not selected as COPC.

Constituents selected as COPCs are indicated by shading.

COPC = Chemical of Potential Concern HI = Hazard Index

J = Estimated Value

mg/kg = milligrams per kilogram

NA = Not available/not applicable

^a Corresponding Hazard Index equals maximum detected concentration divided by the RSL divided by the acceptable risk level.

^b Corresponding Cancer Risk equals maximum detected concentration divided by the RSL divided by the acceptable risk level.

^c Cumulative Corresponding Hazard Index equals sum of Corresponding Hazard Indices for each constituent.

d Cumulative Corresponding Cancer Risk equals sum of Corresponding Cancer Risks for each constituent.

TABLE 2.4b

Risk Ratio Screening for Surface Soil, 95% UCL Concentration Camp Johnson Site 15 MCB Camp Lejeune, North Carolina

	Detection Frequency	95% UCL	95% UCL Rationale	Residential Soil RSL	Acceptable Risk Level	Corresponding Hazard Index ^a	Corresponding Cancer Risk ^b	Target Organ
Analyte								
Semi-volatile Organic Compounds (mg/kg)								
Chrysene	2 / 15	2.2E-02 7	Max	1.5E+01	1E-06	NA	1E-09	NA
Dibenz(a,h)anthracene	1 / 15	6.4E-02 6	Max	1.5E-02	1E-06	NA	4E-06	NA
Indeno(1,2,3-cd)pyrene	1 / 15	5.2E-02 6	Max	1.5E-01	1E-06	NA	3E-07	NA
Polychlorinated Biphenyls (mg/kg)								
Aroclor-1254	1 / 15	3.6E-01 6	Max	1.1E-01	1E-06	NA	3E-06	NA
Metals (mg/kg)								
Arsenic	16 / 16	2.1E+00 1, 3	95% App-G	3.9E-01	1E-06	NA	5E-06	NA
Chromium	16 / 16	7.7E+00 1, 3	95% App-G	2.9E-01	1E-06	NA	3E-05	NA
Cumulative Corresponding Hazard Index ^c		·				NA		
Cumulative Corresponding Cancer Risk ^d							4E-05	

Notes:

- ^a Corresponding Hazard Index equals 95% UCL concentration divided by the RSL divided by the acceptable risk level.
- ^b Corresponding Cancer Risk equals 95% UCL concentration divided by the RSL divided by the acceptable risk level
- ^c Cumulative Corresponding Hazard Index equals sum of Corresponding Hazard Indices for each constituent.
- ^d Cumulative Corresponding Cancer Risk equals sum of Corresponding Cancer Risks for each constituent.

Constituent selected as COPC if it contributes to an overall Hazard Index by target organ greater than 0.5 or Cumulative Corresponding Cancer Risk greater than 5E-05, otherwise, constituent not selected as COPC.

Constituents selected as COPCs are indicated by shading.

COPC = Chemical of Potential Concern mg/kg = milligrams per kilogram HI = Hazard Index NA = Not available/not applicable

ProUCL, Version 4.00.05 used to determine distribution of data and calculate 95% UCL, following recommendations in users guide (USEPA. May 2010. ProUCL, Version 4.0. Prepared by Lockheed Martin Environmental Services). Options: 95% Approximate Gamma UCL (95% App-G); Maximum detected concentration (Max)

Upper Confidence Limit (UCL) Rationale:

- (1) Shapiro-Wilk W Test/Lilliefors test indicates data are log-normally distributed.
- (2) Shapiro-Wilk W Test/Lilliefors indicates data are normally distributed.
- (3) Test indicates data are gamma distributed.
- (4) Distribution tests are inconclusive
- (5) Max value used because 95% UCL greater than max.
- (6) Only detected in one sample, detected concentration used.
- (7) Only detected in 2 samples, and not a significant contributor to risk at maximum detected concentration

Scenario Timeframe: Future Medium: Surface and Subsurface Soil

Exposure Medium: Surface and Subsurface Soil

Exposure Point	CAS Number	Chemical	Minimum [1] Concentration Qualifier	Maximum [1] Concentration Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration [2] Used for Screening	Background [3] Value	Screening [4] Toxicity Value	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for [5] Contaminant Deletion or Selection
07-45	74.55.0	A A A Trickless of the second	ND	ND	140,440		0/00	0.0040 0.0004	0.45.00	N/A	0.4F : 00. NO	1.05.00	Nobobo	NO	DI DOI
Site 15	71-55-6 79-34-5	1,1,1-Trichloroethane 1,1,2,2-Tetrachloroethane	ND ND	ND ND	MG/KG MG/KG		0/20 0/20	0.0016 - 0.0091 0.0016 - 0.0091	9.1E-03 9.1E-03	N/A N/A	6.4E+02 NS 5.6E-01 C	1.2E+00 1.2E-03	NCPSRG NCPSRG	NO NO	DLBSL DLBSL
	79-34-5 76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane(Freon-113)	ND ND	ND ND	MG/KG		0/20	0.0016 - 0.0091	9.1E-03 9.1E-03	N/A N/A	9.1E+02 NS	9.2E+03	NCPSRG	NO	DLBSL
	79-00-5	1.1.2-Trichloroethane	ND ND	ND ND	MG/KG		0/20	0.0016 - 0.0091	9.1E-03	N/A	1.1E+00 C	9.2E+03 N/A	NCFSRG	NO	DLBSL
	79-00-5 75-34-3	1.1-Dichloroethane	ND ND	ND ND	MG/KG		0/20	0.0016 - 0.0091	9.1E-03 9.1E-03	N/A N/A	3.3E+00 C	3.0E-02	NCPSRG	NO	DLBSL
	75-34-3 75-35-4	1.1-Dichloroethane	ND ND	ND ND	MG/KG		0/20	0.0016 - 0.0091	9.1E-03	N/A	2.4E+01 N	4.6E-02	NCPSRG	NO	DLBSL
	120-82-1	1.2.4-Trichlorobenzene	1.9E-03 J	2.5E-03 J	MG/KG	IR15-SB07-2-4-09C	4/21	0.0016 - 0.0091	9.1E-03 2.5E-03	N/A N/A	6.2E+00 C**	4.6E-02 2.2E+00	NCPSRG	NO	BSL
	96-12-8	1,2-Dibromo-3-chloropropane	ND	2.5E-03 J ND	MG/KG	IK 13-3B07-2-4-09C	0/20	0.0016 - 0.0091	9.1E-03	N/A	5.4E-03 C	2.5E-04	NCPSRG	YES	DLASL
	106-93-4	1.2-Dibromoethane	ND ND	ND	MG/KG		0/20	0.0016 - 0.0091	9.1E-03	N/A	3.4E-02 C	9.7E-05	NCPSRG	NO	DLBSL
	95-50-1	1.2-Diorioetriarie 1.2-Dichlorobenzene	ND ND	ND ND	MG/KG		0/20	0.0016 - 0.0091	9.1E-03	N/A	1.9E+02 N	2.4E-01	NCPSRG	NO	DLBSL
	107-06-2	1,2-Dichloroethane	ND ND	ND	MG/KG		0/20	0.0016 - 0.0091	9.1E-03	N/A	4.3E-01 C	2.4E-01 2.0E-03	NCPSRG	NO	DLBSL
	78-87-5	1,2-Dichloropropane	ND ND	ND ND	MG/KG		0/20	0.0016 - 0.0091	9.1E-03	N/A	9.0E-01 C*	3.3E-03	NCPSRG	NO	DLBSL
	541-73-1	1,3-Dichlorobenzene	1.3E-03 J	1.6E-03 J	MG/KG	IR15-SB07-2-4-09C	3/21	0.0016 - 0.0091	1.6E-03	N/A	2.4E+00 C	0.3E-03 N/A	NCPSRG	NO	BSL
	106-46-7	1.4-Dichlorobenzene	1.4E-03 J	1.6E-03 J	MG/KG	IR15-SB07-2-4-09C	2/21	0.0016 - 0.0091	1.6E-03	N/A	2.4E+00 C	7.0E-02	NCPSRG	NO	BSL
	78-93-3	2-Butanone	4.4E-03 J	4.0E-02 J	MG/KG	IR15-SS08-00-01-09C	10/21	0.0016 - 0.0091	4.0E-03	N/A	2.4E+00 C 2.8E+03 N	1.6E+01	NCPSRG	NO	BSL
	591-78-6	2-Hexanone	6.0E-04 J	4.1E-03 J	MG/KG	IR15-SB07-2-4-09C	2/21	0.0031 - 0.018	4.1E-03	N/A	2.1E+01 N	1.2E+00	NCPSRG	NO	BSL
	108-10-1	4-Methyl-2-pentanone	1.7E-03 J	1.7E-03 J	MG/KG	IR15-SB09-2-7-09C	1/21	0.0031 - 0.018	1.7E-03	N/A	5.3E+02 N	N/A	NOI SING	NO	BSL
	67-64-1	Acetone	4.6E-03	1.7E+00 J	MG/KG	IR15-SS08-00-01-09C	21/23	0.0031 - 0.036	1.7E+00	N/A	6.1E+03 N	2.4E+01	NCPSRG	NO	BSL
	71-43-2	Benzene	4.2E-04 J	9.7E-04 J	MG/KG	IR15-SB04-2-7-09C	2/21	0.0031 - 0.030	9.7E-04	N/A	1.1E+00 C*	7.3E-02	NCPSRG	NO	BSL
	75-27-4	Bromodichloromethane	ND	ND	MG/KG	11(10 0004 2 7 000	0/20	0.0016 - 0.0091	9.1E-03	N/A	2.7E-01 C	2.9E-03	NCPSRG	NO	DLBSL
	75-25-2	Bromoform	ND	ND	MG/KG		0/20	0.0016 - 0.0091	9.1E-03	N/A	6.1E+01 C*	1.9E-02	NCPSRG	NO	DLBSL
	74-83-9	Bromomethane	ND	ND	MG/KG		0/17	0.0032 - 0.012	1.2E-02	N/A	7.3E-01 N	N/A	1101 0110	NO	DLBSL
	75-15-0	Carbon disulfide	1.4E-03 J	1.4E-03 J	MG/KG	IR15-SB02D-2-7-09C	1/20	0.0016 - 0.0091	1.4E-03	N/A	8.2E+01 N	3.8E+00	NCPSRG	NO	BSL
	56-23-5	Carbon tetrachloride	ND	ND	MG/KG	05025 2 7 000	0/20	0.0016 - 0.0091	9.1E-03	N/A	6.1E-01 C	2.0E-03	NCPSRG	NO	DLBSL
	108-90-7	Chlorobenzene	2.6E-03 J	2.6E-03 J	MG/KG	IR15-SB09-2-7-09C	1/21	0.0016 - 0.0091	2.6E-03	N/A	2.9E+01 N	4.5E-01	NCPSRG	NO	BSL
	75-00-3	Chloroethane	ND	ND	MG/KG		0/19	0.0032 - 0.014	1.4E-02	N/A	1.5E+03 N	1.6E+01	NCPSRG	NO	DLBSL
	67-66-3	Chloroform	5.2E-03 J	5.2E-03 J	MG/KG	IR15-SS01-00-01-09C	1/20	0.0016 - 0.0091	5.2E-03	N/A	2.9E-01 C	3.4E-01	NCPSRG	NO	BSL
	74-87-3	Chloromethane	ND	ND	MG/KG		0/20	0.0031 - 0.014	1.4E-02	N/A	1.2E+01 N	1.5E-02	NCPSRG	NO	DLBSL
	156-59-2	cis-1,2-Dichloroethene	ND	ND	MG/KG		0/20	0.0016 - 0.0091	9.1E-03	N/A	7.8E+01 N	3.6E-01	NCPSRG	NO	DLBSL
	10061-01-5	cis-1,3-Dichloropropene	ND	ND	MG/KG		0/20	0.0016 - 0.0091	9.1E-03	N/A	1.7E+00 C*	2.3E-03	NCPSRG	NO	DLBSL
	110-82-7	Cyclohexane	ND	ND	MG/KG		0/20	0.0016 - 0.0091	9.1E-03	N/A	1.2E+02 NS	N/A		NO	DLBSL
	124-48-1	Dibromochloromethane	ND	ND	MG/KG		0/20	0.0016 - 0.0091	9.1E-03	N/A	6.8E-01 C	1.9E-03	NCPSRG	NO	DLBSL
	75-71-8	Dichlorodifluoromethane (Freon-12)	ND	ND	MG/KG		0/20	0.0016 - 0.0091	9.1E-03	N/A	1.8E+01 N	2.9E+01	NCPSRG	NO	DLBSL
	100-41-4	Ethylbenzene	ND	ND	MG/KG		0/20	0.0016 - 0.0091	9.1E-03	N/A	5.4E+00 C	8.1E+00	NCPSRG	NO	DLBSL
	98-82-8	Isopropylbenzene	ND	ND	MG/KG		0/20	0.0016 - 0.0091	9.1E-03	N/A	2.1E+02 N	1.3E+00	NCPSRG	NO	DLBSL
	79-20-9	Methyl acetate	3.5E-03 J	2.1E+00	MG/KG	IR15-SS08-00-01-09C	7/21	0.0016 - 0.72	2.1E+00	N/A	7.8E+03 N	N/A		NO	BSL

Scenario Timeframe: Future Medium: Surface and Subsurface Soil

Exposure Point	CAS Number	Chemical	Minimum [1] Concentration Qualifier	Maximum [1] Concentration Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration [2] Used for Screening	Background [3] Value	Screening [4] Toxicity Value	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for [5] Contaminant Deletion or Selection
	108-87-2	Methylcyclohexane	ND	ND	MG/KG		0/20	0.0016 - 0.0091	9.1E-03	N/A	N/A	N/A		NO	NTX
	75-09-2	Methylene chloride	2.9E-03 J	8.9E-03 J	MG/KG	IR15-SB05-2-7-09C	4/20	0.0031 - 0.014	8.9E-03	N/A	1.1E+01 C	2.3E-02	NCPSRG	NO	BSL
	1634-04-4	Methyl-tert-butyl ether (MTBE)	ND	ND	MG/KG		0/20	0.0016 - 0.0091	9.1E-03	N/A	4.3E+01 C	8.5E-02	NCPSRG	NO	DLBSL
	100-42-5	Styrene	2.6E-03 J	2.9E-03 J	MG/KG	IR15-SB07-2-4-09C	2/21	0.0016 - 0.0091	2.9E-03	N/A	6.3E+02 N	9.2E-01	NCPSRG	NO	BSL
	127-18-4	Tetrachloroethene	1.5E-03 J	1.5E-03 J	MG/KG	IR15-SB09-2-7-09C	1/21	0.0016 - 0.0091	1.5E-03	N/A	5.5E-01 C	5.0E-03	NCPSRG	NO	BSL
	108-88-3	Toluene	4.2E-04 J	1.0E-02 J	MG/KG	IR15-SS08-00-01-09C	4/21	0.0016 - 0.0091	1.0E-02	N/A	5.0E+02 N	5.5E+00	NCPSRG	NO	BSL
	156-60-5	trans-1,2-Dichloroethene	ND	ND	MG/KG		0/20	0.0016 - 0.0091	9.1E-03	N/A	1.5E+01 N	5.1E-01	NCPSRG	NO	DLBSL
	10061-02-6	trans-1,3-Dichloropropene	ND	ND	MG/KG		0/20	0.0016 - 0.0091	9.1E-03	N/A	1.7E+00 C*	2.3E-03	NCPSRG	NO	DLBSL
	79-01-6	Trichloroethene	ND	ND	MG/KG		0/20	0.0016 - 0.0091	9.1E-03	N/A	2.8E+00 C	1.8E-02	NCPSRG	NO	DLBSL
	75-69-4	Trichlorofluoromethane(Freon-11)	ND	ND	MG/KG		0/20	0.0016 - 0.0091	9.1E-03	N/A	7.9E+01 N	2.4E+01	NCPSRG	NO	DLBSL
	75-01-4	Vinyl chloride	ND	ND	MG/KG		0/20	0.0031 - 0.014	1.4E-02	N/A	6.0E-02 C	1.9E-04	NCPSRG	NO	DLBSL
	1330-20-7	Xylene, total	ND	ND	MG/KG		0/20	0.0016 - 0.0091	9.1E-03	N/A	6.3E+01 N	6.0E+00	NCPSRG	NO	DLBSL
	92-52-4	1,1-Biphenyl	ND	ND	MG/KG		0/25	0.17 - 0.4	4.0E-01	N/A	2.1E+02 NS	4.3E+01	NCPSRG	NO	DLBSL
	108-60-1	2,2'-Oxybis(1-chloropropane)	ND	ND	MG/KG		0/25	0.17 - 0.4	4.0E-01	N/A	4.6E+00 C	N/A		NO	DLBSL
	95-95-4	2,4,5-Trichlorophenol	ND	ND	MG/KG		0/25	0.17 - 0.4	4.0E-01	N/A	6.1E+02 N	N/A		NO	DLBSL
	88-06-2	2,4,6-Trichlorophenol	ND	ND	MG/KG		0/5	0.36 - 0.4	4.0E-01	N/A	6.1E+00 C**	N/A		NO	DLBSL
	120-83-2	2,4-Dichlorophenol	ND	ND	MG/KG		0/25	0.17 - 0.4	4.0E-01	N/A	1.8E+01 N	N/A		NO	DLBSL
	105-67-9	2,4-Dimethylphenol	ND	ND	MG/KG		0/25	0.17 - 0.4	4.0E-01	N/A	1.2E+02 N	1.4E+00	NCPSRG	NO	DLBSL
	51-28-5	2,4-Dinitrophenol	ND	ND	MG/KG		0/25	0.17 - 1	1.0E+00	N/A	1.2E+01 N	N/A		NO	DLBSL
	121-14-2	2,4-Dinitrotoluene	ND	ND	MG/KG		0/25	0.17 - 0.4	4.0E-01	N/A	1.6E+00 C*	N/A		NO	DLBSL
	606-20-2	2,6-Dinitrotoluene	ND	ND	MG/KG		0/25	0.17 - 0.4	4.0E-01	N/A	6.1E+00 N	N/A		NO	DLBSL
	91-58-7	2-Chloronaphthalene	ND	ND	MG/KG		0/25	0.17 - 0.4	4.0E-01	N/A	1.8E+02 NS	N/A		NO	DLBSL
	95-57-8	2-Chlorophenol	ND	ND	MG/KG		0/25	0.17 - 0.4	4.0E-01	N/A	3.9E+01 N	4.1E-03	NCPSRG	NO	DLBSL
	91-57-6	2-Methylnaphthalene	ND	ND	MG/KG		0/25	0.17 - 0.4	4.0E-01	N/A	3.1E+01 N	1.6E+00	NCPSRG	NO	DLBSL
	95-48-7	2-Methylphenol	ND	ND	MG/KG		0/25	0.17 - 0.4	4.0E-01	N/A	3.1E+02 N	N/A		NO	DLBSL
	88-74-4	2-Nitroaniline	ND	ND	MG/KG		0/25	0.17 - 0.4	4.0E-01	N/A	6.1E+01 N	N/A		NO	DLBSL
	88-75-5	2-Nitrophenol	ND	ND	MG/KG		0/25	0.17 - 0.4	4.0E-01	N/A	3.9E+01 N	N/A		NO	DLBSL
	m&pCRESOL	3- and 4-Methylphenol	ND	ND	MG/KG		0/5	0.73 - 0.8	8.0E-01	N/A	3.1E+01 N	4.0E-01	NCPSRG	NO	DLBSL
	91-94-1	3,3'-Dichlorobenzidine	ND	ND	MG/KG		0/25	0.17 - 1	1.0E+00	N/A	1.1E+00 C	N/A		NO	DLBSL
	99-09-2	3-Nitroaniline	ND	ND	MG/KG		0/25	0.17 - 0.4	4.0E-01	N/A	N/A	N/A		NO	NTX
	534-52-1	4,6-Dinitro-2-methylphenol	ND	ND	MG/KG		0/25	0.17 - 1	1.0E+00	N/A	6.1E-01 N	N/A		YES	DLASL
	101-55-3	4-Bromophenyl-phenylether	ND	ND	MG/KG		0/25	0.17 - 0.4	4.0E-01	N/A	N/A	N/A		NO	NTX
	59-50-7	4-Chloro-3-methylphenol	ND	ND	MG/KG		0/25	0.17 - 0.4	4.0E-01	N/A	6.1E+02 N	N/A		NO	DLBSL
	106-47-8	4-Chloroaniline	ND	ND	MG/KG		0/25	0.17 - 0.4	4.0E-01	N/A	2.4E+00 C	N/A		NO	DLBSL
	7005-72-3	4-Chlorophenyl-phenylether	ND	ND	MG/KG		0/25	0.17 - 0.4	4.0E-01	N/A	3.1E+01 N	N/A		NO	DLBSL
	106-44-5	4-Methylphenol	ND	ND	MG/KG		0/20	0.17 - 0.21	2.1E-01	N/A	3.1E+01 N	4.0E-01	NCPSRG	NO	DLBSL
	100-01-6	4-Nitroaniline	ND	ND	MG/KG		0/25	0.17 - 0.4	4.0E-01	N/A	2.4E+01 C*	N/A		NO	DLBSL

Scenario Timeframe: Future Medium: Surface and Subsurface Soil

Exposure Point	CAS Number	Chemical	Minimum [1] Concentration Qualifier	Maximum [1] Concentration Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration [2] Used for Screening	Background [3] Value	Screening [4] Toxicity Value	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for [5] Contaminant Deletion or Selection
	100-02-7	4-Nitrophenol	ND	ND	MG/KG		0/25	0.17 - 1	1.0E+00	N/A	4.8E+00 C*	N/A		NO	DLBSL
	83-32-9	Acenaphthene	ND	ND	MG/KG		0/25	0.17 - 0.4	4.0E-01	N/A	3.4E+02 N	8.4E+00	NCPSRG	NO	DLBSL
	208-96-8	Acenaphthylene	ND	ND	MG/KG		0/25	0.17 - 0.4	4.0E-01	N/A	3.4E+02 N	1.1E+01	NCPSRG	NO	DLBSL
	98-86-2	Acetophenone	ND	ND	MG/KG		0/25	0.17 - 0.4	4.0E-01	N/A	7.8E+02 N	N/A		NO	DLBSL
	120-12-7	Anthracene	ND	ND	MG/KG		0/25	0.17 - 0.4	4.0E-01	N/A	1.7E+03 N	6.6E+02	NCPSRG	NO	DLBSL
	1912-24-9	Atrazine	ND	ND	MG/KG		0/25	0.17 - 0.4	4.0E-01	N/A	2.1E+00 C	2.5E-02	NCPSRG	NO	DLBSL
	100-52-7	Benzaldehyde	ND	ND	MG/KG		0/16	0.17 - 1	1.0E+00	N/A	7.8E+02 N	N/A		NO	DLBSL
	56-55-3	Benzo(a)anthracene	ND	ND	MG/KG		0/25	0.035 - 0.4	4.0E-01	N/A	1.5E-01 C	1.8E-01	NCPSRG	YES	DLASL
	50-32-8	Benzo(a)pyrene	ND	ND	MG/KG		0/25	0.035 - 0.4	4.0E-01	N/A	1.5E-02 C	5.9E-02	NCPSRG	YES	DLASL
	205-99-2	Benzo(b)fluoranthene	ND	ND	MG/KG		0/25	0.035 - 0.4	4.0E-01	N/A	1.5E-01 C	6.0E-01	NCPSRG	YES	DLASL
	191-24-2	Benzo(g,h,i)perylene	9.5E-02 J	9.5E-02 J	MG/KG	IR15-SS03D-00-01-09C	1/25	0.17 - 0.4	9.5E-02	N/A	1.7E+02 N	3.6E+02	NCPSRG	NO	BSL
	207-08-9	Benzo(k)fluoranthene	ND	ND	MG/KG		0/25	0.17 - 0.4	4.0E-01	N/A	1.5E+00 C	5.9E+00	NCPSRG	NO	DLBSL
	111-91-1	bis(2-Chloroethoxy)methane	ND	ND	MG/KG		0/25	0.17 - 0.4	4.0E-01	N/A	1.8E+01 N	N/A		NO	DLBSL
	111-44-4	bis(2-Chloroethyl)ether	ND	ND	MG/KG		0/25	0.17 - 0.4	4.0E-01	N/A	2.1E-01 C	1.4E-04	NCPSRG	YES	DLASL
	117-81-7	bis(2-Ethylhexyl)phthalate	3.1E-02 J	1.8E-01 J	MG/KG	IR15-SS01-00-01-09C	6/25	0.17 - 0.4	1.8E-01	N/A	3.5E+01 C*	7.2E+00	NCPSRG	NO	BSL
	85-68-7	Butylbenzylphthalate	1.9E-01 J	1.9E-01 J	MG/KG	IR15-SS01-00-01-09C	1/25	0.17 - 0.4	1.9E-01	N/A	2.6E+02 C*	1.5E+02	NCPSRG	NO	BSL
	105-60-2	Caprolactam	ND	ND	MG/KG		0/24	0.17 - 1	1.0E+00	N/A	3.1E+03 N	1.8E+01	NCPSRG	NO	DLBSL
	86-74-8	Carbazole	ND	ND	MG/KG		0/25	0.17 - 0.4	4.0E-01	N/A	N/A	N/A		NO	NTX
	218-01-9	Chrysene	1.5E-02 J	2.2E-02 J	MG/KG	SWMU46-SM01-0-1	2/25	0.17 - 0.4	2.2E-02	N/A	1.5E+01 C	1.8E+01	NCPSRG	YES	СРАН
	53-70-3	Dibenz(a,h)anthracene	6.4E-02 J	6.4E-02 J	MG/KG	IR15-SS03D-00-01-09C	1/25	0.035 - 0.4	6.4E-02	N/A	1.5E-02 C	1.9E-01	NCPSRG	YES	ASL
	132-64-9	Dibenzofuran	ND	ND	MG/KG		0/25	0.17 - 0.4	4.0E-01	N/A	7.8E+00 N	4.7E+00	NCPSRG	NO	DLBSL
	84-66-2	Diethylphthalate	ND	ND	MG/KG		0/25	0.17 - 0.4	4.0E-01	N/A	4.9E+03 N	3.7E+01	NCPSRG	NO	DLBSL
	131-11-3	Dimethyl phthalate	ND	ND	MG/KG		0/25	0.17 - 0.4	4.0E-01	N/A	N/A	N/A		NO	NTX
	84-74-2	Di-n-butylphthalate	5.0E-02 J	1.5E-01 J	MG/KG	IR15-SS10-00-01-09C	6/25	0.17 - 0.4	1.5E-01	N/A	6.1E+02 N	1.9E+01	NCPSRG	NO	BSL
	117-84-0	Di-n-octylphthalate	ND	ND	MG/KG		0/25	0.17 - 0.4	4.0E-01	N/A	3.5E+01 C*	3.8E+01	NCPSRG	NO	DLBSL
	206-44-0	Fluoranthene	ND	ND	MG/KG		0/25	0.17 - 0.4	4.0E-01	N/A	2.3E+02 N	3.3E+02	NCPSRG	NO	DLBSL
	86-73-7	Fluorene	ND	ND	MG/KG		0/25	0.17 - 0.4	4.0E-01	N/A	2.3E+02 N	5.6E+01	NCPSRG	NO	DLBSL
	118-74-1	Hexachlorobenzene	ND	ND	MG/KG		0/25	0.17 - 0.4	4.0E-01	N/A	3.0E-01 C	2.6E-03	NCPSRG	YES	DLASL
	87-68-3	Hexachlorobutadiene	ND	ND	MG/KG		0/25	0.17 - 0.4	4.0E-01	N/A	6.1E+00 C**	8.7E-03	NCPSRG	NO	DLBSL
	77-47-4	Hexachlorocyclopentadiene	ND	ND	MG/KG		0/25	0.17 - 1	1.0E+00	N/A	3.7E+01 N	N/A		NO	DLBSL
	67-72-1	Hexachloroethane	ND	ND	MG/KG		0/25	0.17 - 0.4	4.0E-01	N/A	6.1E+00 C**	N/A		NO	DLBSL
	193-39-5	Indeno(1,2,3-cd)pyrene	5.2E-02 J	5.2E-02 J	MG/KG	IR15-SS03D-00-01-09C	1/25	0.035 - 0.4	5.2E-02	N/A	1.5E-01 C	2.0E+00	NCPSRG	YES	CPAH
	78-59-1	Isophorone	ND	ND	MG/KG		0/25	0.035 - 0.4	4.0E-01	N/A	5.1E+02 C*	2.0E-01	NCPSRG	NO	DLBSL
	91-20-3	Naphthalene	ND	ND	MG/KG		0/25	0.17 - 0.4	4.0E-01	N/A	3.6E+00 C*	2.1E-01	NCPSRG	NO	DLBSL
	621-64-7	n-Nitroso-di-n-propylamine	ND	ND	MG/KG		0/25	0.035 - 0.4	4.0E-01	N/A	6.9E-02 C	N/A		YES	DLASL
	86-30-6	n-Nitrosodiphenylamine	ND	ND	MG/KG		0/25	0.17 - 0.4	4.0E-01	N/A	9.9E+01 C	N/A		NO	DLBSL
	98-95-3	Nitrobenzene	ND	ND	MG/KG		0/25	0.17 - 0.4	4.0E-01	N/A	4.8E+00 C*	N/A		NO	DLBSL

Scenario Timeframe: Future Medium: Surface and Subsurface Soil

Exposure Point	CAS Number	Chemical	Minimum [1] Concentration Qualifier	Maximum [1] Concentration Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration [2] Used for Screening	Background [3] Value	Screening [4] Toxicity Value	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for [5] Contaminant Deletion
															or Selection
	87-86-5	Pentachlorophenol	ND	ND	MG/KG		0/25	0.17 - 1	1.0E+00	N/A	3.0E+00 C	3.1E-02	NCPSRG	NO	DLBSL
	85-01-8	Phenanthrene	ND	ND	MG/KG		0/25	0.17 - 0.4	4.0E-01	N/A	1.7E+03 N	5.7E+01	NCPSRG	NO	DLBSL
	108-95-2	Phenol	ND	ND	MG/KG		0/25	0.17 - 0.4	1.8E-01	N/A	1.8E+03 N	2.3E-01	NCPSRG	NO	DLBSL
	129-00-0	Pyrene	ND	ND	MG/KG		0/25	0.17 - 0.4	1.8E-01	N/A	1.7E+02 N	2.2E+02	NCPSRG	NO	DLBSL
	72-54-8	4,4'-DDD	5.8E-04 J	4.6E-02	MG/KG	IR15-SB10-2-4-09C	9/25	0.0017 - 0.009	1.8E-01	N/A	2.0E+00 C	2.4E-01	NCPSRG	NO	BSL
	72-55-9	4,4'-DDE	5.6E-04 J	9.5E-02	MG/KG	IR15-SB10-2-4-09C	17/25	0.0017 - 0.009	1.8E-01	N/A	1.4E+00 C	N/A		NO	BSL
	50-29-3	4,4'-DDT	3.9E-04 J	1.8E-01	MG/KG	IR15-SB10-2-4-09C	14/25	0.0017 - 0.018	1.8E-01	N/A	1.7E+00 C*	3.4E-01	NCPSRG	NO	BSL
	309-00-2	Aldrin	ND	ND	MG/KG		0/25	0.0017 - 0.0021	2.1E-03	N/A	2.9E-02 C*	N/A		NO	DLBSL
	319-84-6	alpha-BHC	ND	ND	MG/KG		0/25	0.0017 - 0.0021	2.1E-03	N/A	7.7E-02 C	1.2E-03	NCPSRG	NO	DLBSL
	5103-71-9	alpha-Chlordane	1.0E-03 J	9.9E-03 J	MG/KG	IR15-SB10-2-4-09C	5/25	0.0017 - 0.0021	9.9E-03	N/A	1.6E+00 C*	6.8E-02	NCPSRG	NO	BSL
	12674-11-2	Aroclor-1016	ND	ND	MG/KG		0/25	0.017 - 0.021	2.1E-02	N/A	3.9E-01 N	N/A		NO	DLBSL
	11104-28-2	Aroclor-1221	ND	ND	MG/KG		0/25	0.017 - 0.021	2.1E-02	N/A	1.4E-01 C	N/A		NO	DLBSL
	11141-16-5	Aroclor-1232	ND	ND	MG/KG		0/25	0.017 - 0.021	2.1E-02	N/A	1.4E-01 C	N/A		NO	DLBSL
	53469-21-9	Aroclor-1242	ND	ND	MG/KG		0/25	0.017 - 0.021	2.1E-02	N/A	2.2E-01 C	N/A		NO	DLBSL
	12672-29-6	Aroclor-1248	ND	ND	MG/KG		0/25	0.017 - 0.021	2.1E-02	N/A	2.2E-01 C	N/A		NO	DLBSL
	11097-69-1	Aroclor-1254	3.6E-01 J	3.6E-01 J	MG/KG	IR15-SS01-00-01-09C	1/25	0.017 - 0.021	3.6E-01	N/A	1.1E-01 C**	N/A		YES	ASL
	11096-82-5	Aroclor-1260	ND	ND	MG/KG		0/25	0.017 - 0.021	2.1E-02	N/A	2.2E-01 C	N/A		NO	DLBSL
	319-85-7	beta-BHC	ND	ND	MG/KG		0/25	0.0017 - 0.0021	2.1E-03	N/A	2.7E-01 C	1.2E-03	NCPSRG	NO	DLBSL
	319-86-8	delta-BHC	ND	ND	MG/KG		0/25	0.0017 - 0.0021	2.1E-03	N/A	2.7E-01 C	1.2E-03	NCPSRG	NO	DLBSL
	60-57-1	Dieldrin	9.1E-04 J	2.3E-03	MG/KG	IR15-SB05-2-7-09C	3/25	0.0017 - 0.0021	2.3E-03	N/A	3.0E-02 C	8.1E-04	NCPSRG	NO	BSL
	959-98-8	Endosulfan I	ND	ND	MG/KG		0/25	0.0017 - 0.0021	2.1E-03	N/A	3.7E+01 N	5.6E+00	NCPSRG	NO	DLBSL
	33213-65-9	Endosulfan II	1.1E-03 JP	1.1E-03 JP	MG/KG	SWMU46-SM01-0-1	1/25	0.0017 - 0.0021	1.1E-03	N/A	3.7E+01 N	5.6E+00	NCPSRG	NO	BSL
	1031-07-8	Endosulfan sulfate	1.6E-02 P	3.8E-02 D	MG/KG	SWMU46-SM03-0-1	4/25	0.0017 - 0.0037	3.8E-02	N/A	3.7E+01 N	5.6E+00	NCPSRG	NO	BSL
	72-20-8	Endrin	1.7E-03 JP	1.7E-03 JP	MG/KG	SWMU46-SM01-0-1	1/25	0.0017 - 0.0021	1.7E-03	N/A	1.8E+00 N	8.1E-01	NCPSRG	NO	BSL
	7421-93-4	Endrin aldehyde	ND	ND	MG/KG		0/25	0.0017 - 0.0021	2.1E-03	N/A	1.8E+00 N	8.1E-01	NCPSRG	NO	DLBSL
	53494-70-5	Endrin ketone	3.8E-03 P	1.8E-02 P	MG/KG	SWMU46-SM05-0-1	4/25	0.0017 - 0.0021	1.8E-02	N/A	1.8E+00 N	8.1E-01	NCPSRG	NO	BSL
	58-89-9	gamma-BHC (Lindane)	ND	ND	MG/KG		0/25	0.0017 - 0.0021	2.1E-03	N/A	5.2E-01 C*	1.8E-03	NCPSRG	NO	DLBSL
	5103-74-2	gamma-Chlordane	5.8E-04 J	8.6E-03 J	MG/KG	IR15-SS01-00-01-09C	5/25	0.0017 - 0.0021	8.6E-03	N/A	1.6E+00 C*	6.8E-02	NCPSRG	NO	BSL
	76-44-8	Heptachlor	ND	ND	MG/KG		0/25	0.0017 - 0.0021	2.1E-03	N/A	1.1E-01 C	6.6E-03	NCPSRG	NO	DLBSL
	1024-57-3	Heptachlor epoxide	ND	ND	MG/KG		0/25	0.0017 - 0.0021	2.1E-03	N/A	5.3E-02 C*	8.2E-04	NCPSRG	NO	DLBSL
	72-43-5	Methoxychlor	4.6E-03 J	4.6E-03 J	MG/KG	SWMU46-SM01-0-1	1/25	0.0017 - 0.008	4.6E-03	N/A	3.1E+01 N	2.2E+01	NCPSRG	NO	BSL
	8001-35-2	Toxaphene	ND	ND	MG/KG		0/25	0.035 - 0.1	1.0E-01	N/A	4.4E-01 C	4.6E-02	NCPSRG	NO	DLBSL
	7429-90-5	Aluminum	4.6E+02	1.3E+04	MG/KG	IR15-SS03-00-01-09C	20/20	75.3 - 430	1.3E+04	5.5E+03	7.7E+03 N	N/A		YES	ASL
	7440-36-0	Antimony	2.1E-01 J-	8.2E-01 J-	MG/KG	IR15-SB01-4-6-09C	6/20	1.5 - 8.6	8.2E-01	3.6E-01	3.1E+00 N	N/A		NO	BSL
	7440-38-2	Arsenic	2.4E-01 J	1.7E+01	MG/KG	IR15-SB09-2-7-09C	25/26	0.27 - 8.6	1.7E+01	6.3E-01	3.9E-01 C*	5.8E+00	NCPSRG	YES	ASL
	7440-39-3	Barium	2.9E+00 J	3.4E+01	MG/KG	IR15-SS01-00-01-09C	24/26	1.4 - 21.5	3.4E+01	1.5E+01	1.5E+03 N	5.8E+02	NCPSRG	NO	BSL
	7440-41-7	Beryllium	3.9E-02 J	1.4E-01 J	MG/KG	IR15-SS03-00-01-09C	9/20	0.15 - 0.86	1.4E-01	1.0E-01	1.6E+01 N	N/A		NO	BSL

Scenario Timeframe: Future Medium: Surface and Subsurface Soil

Exposure Point	CAS Number	Chemical	Minimum [1] Concentration Qualifier	Maximum [1] Concentration Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration [2] Used for Screening	Background [3] Value	Screening [4] Toxicity Value	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for [5] Contaminant Deletion or Selection
	7440-43-9	Cadmium	1.4E-02 J	8.2E-01 J	MG/KG	IR15-SB09-2-7-09C	11/26	0.11 - 2.6	8.2E-01	2.3E-02	7.0E+00 N	3.0E+00	NCPSRG	NO	BSL
	7440-70-2	Calcium	9.4E+01	3.7E+04	MG/KG	IR15-SS01-00-01-09C	18/20	75.3 - 430	3.7E+04	4.4E+02	N/A	N/A		NO	NUT
	7440-47-3	Chromium	1.1E+00 J	5.2E+01 J	MG/KG	IR15-SB09-2-7-09C	26/26	0.27 - 8.6	5.2E+01	6.1E+00	2.9E-01 C	3.8E+00	NCPSRG	YES	ASL
	7440-48-4	Cobalt	6.6E-02 J	9.3E+00	MG/KG	IR15-SB09-2-7-09C	17/20	0.38 - 4.5	9.3E+00	2.9E-01	2.3E+00 N	N/A		YES	ASL
	7440-50-8	Copper	2.7E-01 J	4.2E+01	MG/KG	IR15-SS01-00-01-09C	19/20	1.5 - 8.6	4.2E+01	2.6E+00	3.1E+02 N	7.0E+02	NCPSRG	NO	BSL
	7439-89-6	Iron	1.5E+02 J+	1.8E+05 J+	MG/KG	IR15-SB09-2-7-09C	20/20	11.3 - 64.5	1.8E+05	3.2E+03	5.5E+03 N	1.5E+02	NCPSRG	YES	ASL
	7439-92-1	Lead	1.3E+00 J	4.8E+02	MG/KG	IR15-SB01-4-6-09C	26/26	0.27 - 8.6	4.8E+02	8.5E+00	4.0E+02 NL	2.7E+02	NCPSRG	YES	ASL
	7439-95-4	Magnesium	1.7E+01 J	8.0E+02	MG/KG	IR15-SS03D-00-01-09C	20/20	18.8 - 108	8.0E+02	2.4E+02	N/A	N/A		NO	NUT
	7439-96-5	Manganese	1.5E+00	6.3E+02	MG/KG	IR15-SB09-2-7-09C	20/20	0.38 - 2.2	6.3E+02	9.3E+00	1.8E+02 N	6.5E+01	NCPSRG	YES	ASL
	7439-97-6	Mercury	2.7E-03 J	5.1E-01	MG/KG	IR15-SS01-00-01-09C	12/25	0.033 - 0.1	5.1E-01	7.1E-02	2.3E+00 N	1.0E+00	NCPSRG	NO	BSL
	7440-02-0	Nickel	4.8E-01 J	2.4E+01	MG/KG	IR15-SB09-2-7-09C	18/20	0.75 - 4.3	2.4E+01	1.2E+00	1.6E+02 N	1.3E+02	NCPSRG	NO	BSL
	7440-09-7	Potassium	1.8E+01 J	5.0E+02	MG/KG	IR15-SS03-00-01-09C	17/20	75.3 - 430	5.0E+02	1.2E+02	N/A	N/A		NO	NUT
	7782-49-2	Selenium	2.0E-01 J	5.2E-01	MG/KG	SWMU46-SM08-0-1	7/26	0.27 - 8.6	5.2E-01	5.1E-01	3.9E+01 N	2.1E+00	NCPSRG	NO	BSL
	7440-22-4	Silver	5.5E-02 J	1.7E-01 J	MG/KG	IR15-SS05-00-01-09C	3/26	0.27 - 8.6	1.7E-01	1.3E-01	3.9E+01 N	3.4E+00	NCPSRG	NO	BSL
	7440-23-5	Sodium	4.3E+00 J	6.9E+01 J	MG/KG	IR15-SS03D-00-01-09C	11/20	188 - 1080	6.9E+01	6.8E+01	N/A	N/A		NO	NUT
	7440-28-0	Thallium	1.9E+00 J	1.9E+00 J	MG/KG	IR15-SB09-2-7-09C	1/20	2.3 - 12.9	1.9E+00	3.6E-01	N/A	N/A		NO	NTX
	7440-62-2	Vanadium	2.2E+00 J	2.2E+01	MG/KG	IR15-SS03D-00-01-09C	18/20	3.8 - 21.5	2.2E+01	8.9E+00	3.9E+01 N	N/A		NO	BSL
	7440-66-6	Zinc	1.5E+00 J	3.5E+02	MG/KG	IR15-SB01-4-6-09C	13/20	3.8 - 21.5	3.5E+02	6.6E+00	2.4E+03 N	1.2E+03	NCPSRG	NO	BSL

Table 2.5

OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN

Camp Johnson Site 15 MCB Camp Lejeune, North Carolina

Scenario Timeframe: Future

Medium: Surface and Subsurface Soil

Exposure Medium: Surface and Subsurface Soil

Exposure	CAS	Chemical	Minimum [1]	Maximum [1]	Units	Location	Detection	Range of	Concentration [2]	Background [3]	Screening [4]	Potential	Potential	COPC	Rationale for [5]
Point	Number		Concentration	Concentration		of Maximum	Frequency	Detection	Used for	Value	Toxicity Value	ARAR/TBC	ARAR/TBC	Flag	Contaminant
			Qualifier	Qualifier		Concentration		Limits	Screening			Value	Source		Deletion
															or Selection

- [1] Minimum/Maximum detected concentrations.
- Maximum concentration is used for screening. If the chemical was not detected, the maximum detection limit is used for screening. [2]
- [3] Background values are lower of two times the arithmetic mean basewide background surface soil or subsurface soil concentrations.

Background values are from Final Base Background Soil Study Report, Marine Corps Base Camp Lejeune, North Carolina,

Baker Environmental, April 25, 2001.

Oak Ridge National Laboratory (ORNL). May 17, 2010. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites.

http://epa-prgs.ornl.gov/chemicals/index.shtml. Adjusted (noncarcinogenic RSLs adjusted by dividing by 10) residential soil RSLs.

RSL value for 1,4-Dichlorobenzene used as a surrogate for 1,3-Dichlorobenzene

RSL value for p-cresol used as surrogate for 3- and 4-methylphenol.

RSL value for methoxychlor used as surrogate for 4-chlorophenyl-phenylether.

RSL value for nitrobenzene used as surrogate for 4-nitrophenol.

RSL value for acenaphthene used as surrogate for acenaphthylene.

RSL value for pyrene used as surrogate for benzo(g,h,i)perylene.

RSL value for anthracene used as surrogate for phenanthrene.

RSL value for technical chlordane used as surrogate for alpha-chlordane.

RSL value for technical-HCH used as surrogate for delta-BHC.

RSL value for technical chlordane used as surrogate for gamma-chlordane.

RSL value for 1,3-dichloropropene used as a surrogate for cis-1,3-dichloropropene and trans-1,3-dichloropropene.

RSL value for endosulfan used as surrogate for endosulfan I, endosulfan II, and endosulfan sulfate.

RSL value for endrin used as surrogate for endrin aldehyde and endrin ketone.

RSL value for 2-chlorophenol used as surrogate for 4-chloro-3-methylphenol and 2-nitrophenol.

RSL value for Mercury (inorganic salts) used for mercury.

Rationale Codes

Selection Reason: Above Screening Levels (ASL)

Detection Limit Above Screening Level (DLASL), not quantitatively evaluated in HHRA

Was detected, and other carcinogenic PAHs that were detected were identified as COPCs (cPAH)

Deletion Reason: No Toxicity Information (NTX)

> Essential Nutrient (NUT) Below Screening Level (BSL)

Detection Limit Below Screening Level (DLBSL)

COPC = Chemical of Potential Concern

ARAR/TBC = Applicable or Relevant and Appropriate Requirement/

To Be Considered

NCPSRG = North Carolina Preliminary Soil Remediation Goal, January, 2010

D = Compound identified in an analysis at a secondary dilution factor

J = Estimated Value

J+ = Analyte present, value may be biased high, actual value may be lower

P = Difference between the concentration on the two columns is greater than 20%

C = Carcinogenic

C* = N screening level < 100x C screening level, therefore

N screening value/10 used as screening level

 $C^{**} = N$ screening level < 10x C screening level, therefore

N screening value/10 used as screening level

MG/KG = Milligrams per kilogram

N = Noncarcinogenic

N/A = Not available

ND = Non-detect

NL = Noncarcinogenic lead residential soil RSL not adjusted by dividing by 10.

NS = Concentration exceeds Csat (soil saturation concentration),

Csat used as screening level.

TABLE 2.5a

Risk Ratio Screening for Surface and Subsurface Soil, Maximum Detected Concentration Camp Johnson Site 15 MCB Camp Lejeune, North Carolina

Analyte	Detection Frequency	Maximum Detected Concentration (Qualifier)	Sample Location of Maximum Detected Concentration	Residential Soil RSL	Acceptable Risk Level	Corresponding Hazard Index ^a	Corresponding Cancer Risk ^b	Target Organ
Semi-volatile Organic Compounds (mg/kg)								
Chrysene	2 / 25	2.2E-02 J	SWMU46-SM01-0-1	1.5E+01	1E-06	NA	1E-09	NA
Dibenz(a,h)anthracene	1 / 25	6.4E-02 J	IR15-SS03D-00-01-09C	1.5E-02	1E-06	NA	4E-06	NA
Indeno(1,2,3-cd)pyrene	1 / 25	5.2E-02 J	IR15-SS03D-00-01-09C	1.5E-01	1E-06	NA	3E-07	NA
Polychlorinated Biphenyls (mg/kg)								
Aroclor-1254	1 / 25	3.6E-01 J	IR15-SS01-00-01-09C	1.1E-01	1E-06	NA	3E-06	NA
Metals (mg/kg)								
Aluminum	20 / 20	1.3E+04	IR15-SS03-00-01-09C	7.7E+04	1	0.2	NA	Neurological, Developmental
Arsenic	25 / 26	1.7E+01	IR15-SB09-2-7-09C	3.9E-01	1E-06	NA	4E-05	NA NA
Chromium	26 / 26	5.2E+01 J	IR15-SB09-2-7-09C	2.9E-01	1E-06	NA	2E-04	NA
Cobalt	17 / 20	9.3E+00	IR15-SB09-2-7-09C	2.3E+01	1E+00	0.4	NA	Thyroid
Iron	20 / 20	1.8E+05 J+	IR15-SB09-2-7-09C	5.5E+04	1	3.3	NA	Gastrointestinal
Lead	26 / 26	4.8E+02	IR15-SB01-4-6-09C	NA		NA		
Manganese	20 / 20	6.3E+02	IR15-SB09-2-7-09C	1.8E+03	1	0.3	NA	Central Nervous System
Cumulative Corresponding Hazard Index ^c						4.2		
Cumulative Corresponding Cancer Risk ^d			·	·			2E-04	
						Total	Developmental HI =	0.2
						Total	Gastrointestinal HI =	3.3
						Total N	Nervous System HI =	0.5

Notes:

Constituents selected as COPCs are indicated by shading.

COPC = Chemical of Potential Concern

HI = Hazard Index

J = Estimated Value

J+ = Analyte present, value may be biased high, actual value may be lower

mg/kg = milligrams per kilogram

NA = Not available/not applicable

Total Thyroid HI =

^a Corresponding Hazard Index equals maximum detected concentration divided by the RSL divided by the acceptable risk level.

^b Corresponding Cancer Risk equals maximum detected concentration divided by the RSL divided by the acceptable risk level.

^c Cumulative Corresponding Hazard Index equals sum of Corresponding Hazard Indices for each constituent.

^d Cumulative Corresponding Cancer Risk equals sum of Corresponding Cancer Risks for each constituent.

Constituent selected as COPC if it contributes to an overall Hazard Index by target organ greater than 0.5 or Cumulative Corresponding Cancer Risk greater than 5E-05, otherwise, constituent not selected as COPC.

TABLE 2.5b

Risk Ratio Screening for Surface and Subsurface Soil, 95% UCL Concentration Camp Johnson Site 15 MCB Camp Lejeune, North Carolina

Analyte	Detection Frequency	95% U	CL	95% UCL Rationale	Residential Soil RSL	Acceptable Risk Level	Corresponding Hazard Index ^a	Corresponding Cancer Risk ^b	Target Organ
Semi-volatile Organic Compounds (mg/kg)									
Chrysene	2 / 25	2.2E-02	4, 5	Max	1.5E+01	1E-06	NA	1E-09	NA
Dibenz(a,h)anthracene	1 / 25	6.4E-02	6	Max	1.5E-02	1E-06	NA	4E-06	NA
Indeno(1,2,3-cd)pyrene	1 / 25	5.2E-02	6	Max	1.5E-01	1E-06	NA	3E-07	NA
Polychlorinated Biphenyls (mg/kg)									
Aroclor-1254	1 / 25	3.6E-01	6	Max	1.1E-01	1E-06	NA	3E-06	NA
Metals (mg/kg)									
Arsenic	25 / 26	4.7E+00	1	95% KM-c	3.9E-01	1E-06	NA	1E-05	NA
Chromium	26 / 26	9.9E+00	1	95% H	2.9E-01	1E-06	NA	3E-05	NA
Iron	20 / 20	5.0E+04	1	95% Cheb-m	5.5E+04	1	0.9	NA	Gastrointestinal
Lead	26 / 26	3.6E+01	7	Mean	NA		NA	NA	NA
Cumulative Corresponding Hazard Index ^c						•	0.9		·
Cumulative Corresponding Cancer Risk ^d		•				•		5E-05	
							Total	Gastrointestinal HI =	0.9

Notes:

- ^a Corresponding Hazard Index equals 95% UCL concentration divided by the RSL divided by the acceptable risk level.
- ^b Corresponding Cancer Risk equals 95% UCL concentration divided by the RSL divided by the acceptable risk level
- ^c Cumulative Corresponding Hazard Index equals sum of Corresponding Hazard Indices for each constituent.
- ^d Cumulative Corresponding Cancer Risk equals sum of Corresponding Cancer Risks for each constituent.

Constituent selected as COPC if it contributes to an overall Hazard Index by target organ greater than 0.5 or Cumulative Corresponding Cancer Risk greater than 5E-05, otherwise, constituent not selected as COPC.

Constituents selected as COPCs are indicated by shading.

COPC = Chemical of Potential Concern mg/kg = milligrams per kilogram HI = Hazard Index NA = Not available/not applicable

ProUCL, Version 4.00.05 used to determine distribution of data and calculate 95% UCL, following recommendations in users guide (USEPA. May 2010. ProUCL, Version 4.0. Prepared by Lockheed Martin Environmental Services).

Options: 95% Kaplan-Meier (Chebyshev) UCL (95% KM-c); 95% H UCL (95% H); 95% Chebyshev (MVUE) UCL (95% Cheb); 95% Chebyshev (Mean, Sd) UCL (95% Cheb-m); Maximum detected concentration (Max); Arithmetic Mean (Mean)

Upper Confidence Limit (UCL) Rationale:

- (1) Shapiro-Wilk W Test/Lilliefors test indicates data are log-normally distributed.
- (2) Shapiro-Wilk W Test/Lilliefors indicates data are normally distributed.
- (3) Test indicates data are gamma distributed.
- (4) Distribution tests are inconclusive
- (5) Max value used because 95% UCL greater than max.
- (6) Only detected in one sample, detected concetration used.
- (7) Lead evaluated using arithmetic mean concentration in lead models, therefore, arithmetic mean concentration presented here.

Exposure Point	CAS Number	Chemical	Minimum [1] Concentration Qualifier	Maximum [1] Concentration Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration [2] Used for Screening	Background [3] Value	Screening [4] Toxicity Value	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	
Site 15	71-55-6	1.1.1-Trichloroethane	ND	ND	UG/L		0/4	1 - 1	1.0E+00	N/A	9.1E+02 N	2.0E+02	MCL. 15A NCAC 2L	NO	DLBSL
Site 15	79-34-5	1,1,2,2-Tetrachloroethane	ND ND	ND ND	UG/L		0/4	1 - 1	2.4E+00	N/A N/A	6.7E-02 C	2.0E+02 2.0E-01	15A NCAC 2L	YES	DLBSL
	76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane(Freon-113)	ND ND	ND ND	UG/L		0/4	1 - 2.4	1.0E+00	N/A	5.9E+03 N	2.0E+05	15A NCAC 2L 15A NCAC 2L	NO	DLASL
	79-00-5	1.1.2-Trichloroethane	ND ND	ND	UG/L		0/4	1-1	1.0E+00	N/A	2.4E-01 C	5.0E+00	MCL	YES	DLASL
	75-34-3	1.1-Dichloroethane	ND	ND ND	UG/L		0/4	1-1	1.0E+00	N/A	2.4E+00 C	6.0E+00	15A NCAC 2L	NO	DLASL
	75-35-4	1,1-Dichloroethene	ND	ND	UG/L		0/4	1-1	1.0E+00	N/A	3.4E+01 N	7.0E+00	MCL, 15A NCAC 2L	NO	DLBSL
	120-82-1	1.2.4-Trichlorobenzene	ND	ND	UG/L		0/4	1-1	1.0E+00	N/A	4.1E-01 C**	7.0E+01	MCL, 15A NCAC 2L	YES	DLASL
	106-93-4	1.2-Dibromoethane	ND ND	ND	UG/L		0/4	1-1	1.0E+00	N/A	6.5E-03 C	5.0E-02	MCL MCL	YES	DLASL
	100-33-4	1,2-Dibioinoetilaile	ND	ND	OG/L		0/4	1-1	1.02+00	IN/A	0.5L-03 C	2.0E-02	15A NCAC 2L	ILS	DLAGE
	95-50-1	1.2-Dichlorobenzene	ND	ND	UG/L		0/4	1 - 1	1.0E+00	N/A	3.7E+01 N	6.0E+02	MCL	NO	DLBSL
	30 30 1	1,2-Dictiloroberizerie	145	ND	OO/L		0/4		1.02100	10/3	3.72101 14	2.0E+01	15A NCAC 2L	140	DEBGE
	107-06-2	1.2-Dichloroethane	ND	ND	UG/L		0/4	1 - 1	1.0E+00	N/A	1.5E-01 C	5.0E+00	MCL	YES	DLASL
	107-00-2	1,2-Distributed traine	145	I I I	OO/L		0/4		1.02100	10/3	1.52-01-0	4.0E-01	15A NCAC 2L	120	DEAGE
	78-87-5	1,2-Dichloropropane	ND	ND	UG/L		0/4	1 - 1	1.0E+00	N/A	3.9E-01 C*	5.0E+00	MCL	YES	DLASL
	70-07-5	1,2-Dichiolopiopane	ND	ND	OG/L		0/4	1-1	1.02+00	IN/A	3.9L-01 C	6.0E-01	15A NCAC 2L	ILS	DLAGE
	541-73-1	1.3-Dichlorobenzene	ND	ND	UG/L		0/4	1 - 1	1.0E+00	N/A	4.3E-01 C	2.0E+02	15A NCAC 2L	YES	DLASL
	106-46-7	1,4-Dichlorobenzene	ND	ND	UG/L		0/4	1-1	1.0E+00	N/A	4.3E-01 C	7.5E+01	MCL	YES	DLASL
	100 40 7	1,4-Dictiloroberizerie	145	I I I	OO/L		0/4		1.02100	10/3	4.52-01 0	6.0E+00	15A NCAC 2L	120	DEAGE
	78-93-3	2-Butanone	ND	ND	UG/L		0/4	5 - 5	5.0E+00	N/A	7.1E+02 N	4.0E+03	15A NCAC 2L	NO	DLBSL
	591-78-6	2-Hexanone	ND	ND	UG/L		0/4	5 - 5	5.0E+00	N/A	4.7E+00 N	N/A	IOA NOAO ZE	YES	DLASL
	108-10-1	4-Methyl-2-pentanone	ND	ND	UG/L		0/4	5 - 5	5.0E+00	N/A	2.0E+02 N	N/A		NO	DLBSL
	67-64-1	Acetone	ND	ND	UG/L		0/4	5 - 5	5.0E+00	N/A	2.2E+03 N	6.0E+03	15A NCAC 2L	NO	DLBSL
	71-43-2	Benzene	ND	ND	UG/L		0/4	1 - 1	1.0E+00	N/A	4.1E-01 C	5.0E+00	MCL	YES	DLASL
	1	2012010	1,15	.,,5	00,2		0, 1		1.02100			1.0E+00	15A NCAC 2L		52.102
	75-27-4	Bromodichloromethane	ND	ND	UG/L		0/4	1 - 1	1.0E+00	N/A	1.2E-01 C	8.0E+01	MCL	YES	DLASL
	15214	Bromodernoromenane	145	I I I	OO/L		0/4		1.02100	10/3	1.22-01 0	6.0E-01	15A NCAC 2L	120	DEAGE
	75-25-2	Bromoform	ND	ND	UG/L		0/4	1 - 1	1.0E+00	N/A	8.5E+00 C*	8.0E+01	MCL	NO	DLBSL
	10202	Sidmolom		5	00,2		0, 1		1.02100	1071	0.02100 0	4.0E+00	15A NCAC 2L		DEBOL
	74-83-9	Bromomethane	ND	ND	UG/L		0/4	1.1 - 1.1	1.1E+00	N/A	8.7E-01 N	N/A	10/11/0/10/22	YES	DLASL
	75-15-0	Carbon disulfide	ND	ND	UG/L		0/4	1 - 1	1.0E+00	N/A	1.0E+02 N	7.0E+02	15A NCAC 2L	NO	DLBSL
	56-23-5	Carbon tetrachloride	ND	ND	UG/L		0/4	1-1	1.0E+00	N/A	4.4E-01 C	5.0E+00	MCL	YES	DLASL
	1 200			.,,,	30,2		, o, .					3.0E-01	15A NCAC 2L	0	32.02
	108-90-7	Chlorobenzene	ND	ND	UG/L		0/4	1 - 1	1.0E+00	N/A	9.1E+00 N	1.0E+02	MCL	NO	DLBSL
	. 50 00 .				30,2		٠,٠				3.12.00 14	5.0E+01	15A NCAC 2L		32332
	75-00-3	Chloroethane	ND	ND	UG/L		0/4	1 - 1	1.0E+00	N/A	2.1E+03 N	3.0E+03	15A NCAC 2L	NO	DLBSL
	67-66-3	Chloroform	ND ND	ND ND	UG/L		0/4	1-1	1.0E+00	N/A	1.9E-01 C	8.0E+01	MCL	YES	DLASL
	1		""		30,2					.,,,		7.0E+01	15A NCAC 2L		32.102

Exposure Point	CAS Number	Chemical	Minimum [1] Concentration Qualifier	Maximum [1] Concentration Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration [2] Used for Screening	Background [3] Value	Screening [4] Toxicity Value	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for [5] Contaminant Deletion or Selection
	74-87-3	Chloromethane	ND	ND	UG/L		0/4	1 - 1	1.0E+00	N/A	1.9E+01 N	3.0E+00	15A NCAC 2L	NO	DLBSL
	156-59-2	cis-1,2-Dichloroethene	ND	ND	UG/L		0/4	1 - 1	1.0E+00	N/A	3.7E+01 N	7.0E+01	MCL, 15A NCAC 2L	NO	DLBSL
	10061-01-5	cis-1,3-Dichloropropene	ND	ND	UG/L		0/4	1 - 1	1.0E+00	N/A	4.3E-01 C*	4.0E-01	15A NCAC 2L	YES	DLASL
	110-82-7	Cyclohexane	ND	ND	UG/L		0/4	1 - 1	1.0E+00	N/A	1.3E+03 N	N/A		NO	DLBSL
	124-48-1	Dibromochloromethane	ND	ND	UG/L		0/4	1 - 1	1.0E+00	N/A	1.5E-01 C	6.0E+01 4.0E-01	MCL 15A NCAC 2L	YES	DLASL
	75-71-8	Dichlorodifluoromethane (Freon-12)	ND	ND	UG/L		0/4	1 - 1	1.0E+00	N/A	4.0E+01 N	1.0E+03	15A NCAC 2L	NO	DLBSL
	100-41-4	Ethylbenzene	ND	ND	UG/L		0/4	1 - 1	1.0E+00	N/A	1.5E+00 C	7.0E+02 6.0E+02	MCL 15A NCAC 2L	NO	DLBSL
	98-82-8	Isopropylbenzene	4.9E+00 J	4.9E+00 J	UG/L	IR15-TW03D-09C	1/4	1 - 1	4.9E+00	N/A	6.8E+01 N	7.0E+01	15A NCAC 2L	NO	BSL
	79-20-9	Methyl acetate	ND	ND	UG/L		0/4	1 - 1	1.0E+00	N/A	3.7E+03 N	N/A		NO	DLBSL
	108-87-2	Methylcyclohexane	ND	ND	UG/L		0/4	1 - 1	1.0E+00	N/A	N/A	N/A		NO	NTX
	75-09-2	Methylene chloride	ND	ND	UG/L		0/4	1 - 1	1.0E+00	N/A	4.8E+00 C	5.0E+00	MCL, 15A NCAC 2L	NO	DLBSL
	1634-04-4	Methyl-tert-butyl ether (MTBE)	ND	ND	UG/L		0/4	1 - 1	1.0E+00	N/A	1.3E+01 C	2.0E+01	15A NCAC 2L	NO	DLBSL
	100-42-5	Styrene	5.9E+00 J	5.9E+00 J	UG/L	IR15-TW03D-09C	1/4	1 - 1	5.9E+00	N/A	1.6E+02 N	1.0E+02 7.0E+01	MCL 15A NCAC 2L	NO	BSL
	127-18-4	Tetrachloroethene	ND	ND	UG/L		0/4	1.1 - 1.1	1.1E+00	N/A	1.1E-01 C	5.0E+00 7.0E-01	MCL 15A NCAC 2L	YES	DLASL
	108-88-3	Toluene	ND	ND	UG/L		0/4	1 - 1	1.0E+00	N/A	2.3E+02 N	1.0E+03 6.0E+02	MCL 15A NCAC 2L	NO	DLBSL
	156-60-5	trans-1,2-Dichloroethene	ND	ND	UG/L		0/4	1 - 1	1.0E+00	N/A	1.1E+01 N	1.0E+02	MCL, 15A NCAC 2L	NO	DLBSL
	10061-02-6	trans-1,3-Dichloropropene	ND	ND	UG/L		0/4	1 - 1	1.0E+00	N/A	4.3E-01 C*	4.0E-01	15A NCAC 2L	YES	DLASL
	79-01-6	Trichloroethene	ND	ND	UG/L		0/4	5.1 - 5.1	5.1E+00	N/A	2.0E+00 C	5.0E+00 3.0E+00	MCL 15A NCAC 2L	YES	DLASL
	75-69-4	Trichlorofluoromethane(Freon-11)	ND	ND	UG/L		0/4	1 - 1	1.0E+00	N/A	1.3E+02 N	2.0E+03	15A NCAC 2L	NO	DLBSL
	75-01-4	Vinyl chloride	ND	ND	UG/L		0/4	1 - 1	1.0E+00	N/A	1.6E-02 C	2.0E+00 3.0E-02	MCL 15A NCAC 2L	YES	DLASL
	1330-20-7	Xylene, total	ND	ND	UG/L		0/4	1.2 - 1.2	1.2E+00	N/A	2.0E+01 N	1.0E+04 5.0E+02	MCL 15A NCAC 2L	NO	DLBSL
	92-52-4	1,1-Biphenyl	ND	ND	UG/L		0/3	10 - 11	1.1E+01	N/A	1.8E+02 N	4.0E+02	15A NCAC 2L	NO	DLBSL
	108-60-1	2,2'-Oxybis(1-chloropropane)	ND	ND	UG/L		0/3	10 - 11	1.1E+01	N/A	3.2E-01 C	N/A		YES	DLASL
	95-95-4	2,4,5-Trichlorophenol	ND	ND	UG/L		0/3	10 - 11	1.1E+01	N/A	3.7E+02 N	N/A		NO	DLBSL
	120-83-2	2,4-Dichlorophenol	ND	ND	UG/L		0/3	10 - 11	1.1E+01	N/A	1.1E+01 N	N/A		NO	DLBSL
	105-67-9	2,4-Dimethylphenol	ND	ND	UG/L		0/3	10 - 11	1.1E+01	N/A	7.3E+01 N	1.0E+02	15A NCAC 2L	NO	DLBSL
	51-28-5	2,4-Dinitrophenol	ND	ND	UG/L		0/3	20 - 22	2.2E+01	N/A	7.3E+00 N	N/A		YES	DLASL
	121-14-2	2,4-Dinitrotoluene	ND	ND	UG/L		0/3	10 - 11	1.1E+01	N/A	2.2E-01 C	N/A		YES	DLASL
	606-20-2	2,6-Dinitrotoluene	ND	ND	UG/L		0/3	10 - 11	1.1E+01	N/A	3.7E+00 N	N/A		YES	DLASL
	91-58-7	2-Chloronaphthalene	ND	ND	UG/L		0/3	10 - 11	1.1E+01	N/A	2.9E+02 N	N/A	ĺ	NO	DLBSL

Exposure Point	CAS Number	Chemical	Minimum [1] Concentration Qualifier	Maximum [1] Concentration Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration [2] Used for Screening	Background [3] Value	Screening [4] Toxicity Value	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for [5] Contaminant Deletion or Selection
	95-57-8	2-Chlorophenol	ND	ND	UG/L		0/3	10 - 11	1.1E+01	N/A	1.8E+01 N	4.0E-01	15A NCAC 2L	NO	DLBSL
	91-57-6	2-Methylnaphthalene	ND	ND	UG/L		0/3	10 - 11	1.1E+01	N/A	1.5E+01 N	3.0E+01	15A NCAC 2L	NO	DLBSL
	95-48-7	2-Methylphenol	ND	ND	UG/L		0/3	10 - 11	1.1E+01	N/A	1.8E+02 N	N/A		NO	DLBSL
	88-74-4	2-Nitroaniline	ND	ND	UG/L		0/3	10 - 11	1.1E+01	N/A	3.7E+01 N	N/A		NO	DLBSL
	88-75-5	2-Nitrophenol	ND	ND	UG/L		0/3	10 - 11	1.1E+01	N/A	1.8E+01 N	N/A		NO	DLBSL
	91-94-1	3,3'-Dichlorobenzidine	ND	ND	UG/L		0/3	20 - 22	2.2E+01	N/A	1.5E-01 C	N/A		YES	DLASL
	99-09-2	3-Nitroaniline	ND	ND	UG/L		0/3	10 - 11	1.1E+01	N/A	3.7E+01 N	N/A		NO	DLBSL
	534-52-1	4,6-Dinitro-2-methylphenol	ND	ND	UG/L		0/3	20 - 22	2.2E+01	N/A	3.7E-01 N	N/A		YES	DLASL
	101-55-3	4-Bromophenyl-phenylether	ND	ND	UG/L		0/3	10 - 11	1.1E+01	N/A	N/A	N/A		NO	NTX
	59-50-7	4-Chloro-3-methylphenol	ND	ND	UG/L		0/3	10 - 11	1.1E+01	N/A	3.7E+02 N	N/A		NO	DLBSL
	106-47-8	4-Chloroaniline	ND	ND	UG/L		0/3	10 - 11	1.1E+01	N/A	3.4E-01 C	N/A		YES	DLASL
	7005-72-3	4-Chlorophenyl-phenylether	ND	ND	UG/L		0/3	10 - 11	1.1E+01	N/A	1.8E+01 N	N/A		NO	DLBSL
	106-44-5	4-Methylphenol	ND	ND	UG/L		0/3	20 - 22	2.2E+01	N/A	1.8E+01 N	4.0E+01	15A NCAC 2L	YES	DLASL
	100-01-6	4-Nitroaniline	ND	ND	UG/L		0/3	10 - 11	1.1E+01	N/A	3.4E+00 C*	N/A		YES	DLASL
	100-02-7	4-Nitrophenol	ND	ND	UG/L		0/3	20 - 22	2.2E+01	N/A	1.2E-01 C	N/A		YES	DLASL
	83-32-9	Acenaphthene	ND	ND	UG/L		0/3	10 - 11	1.1E+01	N/A	2.2E+02 N	8.0E+01	15A NCAC 2L	NO	DLBSL
	208-96-8	Acenaphthylene	ND	ND	UG/L		0/3	10 - 11	1.1E+01	N/A	2.2E+02 N	2.0E+02	15A NCAC 2L	NO	DLBSL
	98-86-2	Acetophenone	ND	ND	UG/L		0/3	10 - 11	1.1E+01	N/A	3.7E+02 N	N/A		NO	DLBSL
	120-12-7	Anthracene	ND	ND	UG/L		0/3	10 - 11	1.1E+01	N/A	1.1E+03 N	2.0E+03	15A NCAC 2L	NO	DLBSL
	1912-24-9	Atrazine	ND	ND	UG/L		0/3	20 - 22	2.2E+01	N/A	2.9E-01 C	3.0E+00	MCL, 15A NCAC 2L	YES	DLASL
	56-55-3	Benzo(a)anthracene	ND	ND	UG/L		0/3	10 - 11	1.1E+01	N/A	3.0E-02 C	5.0E-02	15A NCAC 2L	YES	DLASL
	50-32-8	Benzo(a)pyrene	ND	ND	UG/L		0/3	10 - 11	1.1E+01	N/A	3.0E-03 C	2.0E-01	MCL	YES	DLASL
												5.0E-03	15A NCAC 2L		
	205-99-2	Benzo(b)fluoranthene	ND	ND	UG/L		0/3	10 - 11	1.1E+01	N/A	3.0E-02 C	5.0E-02	15A NCAC 2L	YES	DLASL
	191-24-2	Benzo(g,h,i)perylene	ND	ND	UG/L		0/3	10 - 11	1.1E+01	N/A	1.1E+02 N	2.0E+02	15A NCAC 2L	NO	DLBSL
	207-08-9	Benzo(k)fluoranthene	ND	ND	UG/L		0/3	10 - 11	1.1E+01	N/A	3.0E-01 C	5.0E-01	15A NCAC 2L	YES	DLASL
	111-91-1	bis(2-Chloroethoxy)methane	ND	ND	UG/L		0/3	10 - 11	1.1E+01	N/A	1.1E+01 N	N/A		YES	DLASL
	111-44-4	bis(2-Chloroethyl)ether	ND	ND	UG/L		0/3	10 - 11	1.1E+01	N/A	1.2E-02 C	3.0E-02	15A NCAC 2L	YES	DLASL
	117-81-7	bis(2-Ethylhexyl)phthalate	ND	ND	UG/L		0/3	10 - 11	1.1E+01	N/A	4.8E+00 C	6.0E+00	MCL	YES	DLASL
												3.0E+00	15A NCAC 2L		
	85-68-7	Butylbenzylphthalate	ND	ND	UG/L		0/3	10 - 11	1.1E+01	N/A	3.5E+01 C	1.0E+03	15A NCAC 2L	NO	DLBSL
	105-60-2	Caprolactam	ND	ND	UG/L		0/3	10 - 11	1.1E+01	N/A	1.8E+03 N	4.0E+03	15A NCAC 2L	NO	DLBSL
	86-74-8	Carbazole	ND	ND	UG/L		0/3	10 - 11	1.1E+01	N/A	N/A	N/A		NO	NTX
	218-01-9	Chrysene	ND	ND	UG/L		0/3	10 - 11	1.1E+01	N/A	3.0E+00 C	5.0E+00	15A NCAC 2L	YES	DLASL
	53-70-3	Dibenz(a,h)anthracene	ND	ND	UG/L		0/3	10 - 11	1.1E+01	N/A	3.0E-03 C	5.0E-03	15A NCAC 2L	YES	DLASL
	132-64-9	Dibenzofuran	ND	ND	UG/L		0/3	10 - 11	1.1E+01	N/A	3.7E+00 N	N/A		YES	DLASL
	84-66-2	Diethylphthalate	ND	ND	UG/L		0/3	10 - 11	1.1E+01	N/A	2.9E+03 N	6.0E+03	15A NCAC 2L	NO	DLBSL
	131-11-3	Dimethyl phthalate	ND	ND	UG/L		0/3	10 - 11	1.1E+01	N/A	N/A	N/A		NO	NTX

Exposure Point	CAS Number	Chemical	Minimum [1] Concentration Qualifier	Maximum [1] Concentration Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration [2] Used for Screening	Background [3] Value	Screening [4] Toxicity Value	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC	Rationale for [Contaminant Deletion or Selection
	84-74-2	Di-n-butylphthalate	ND	ND	UG/L		0/3	20 - 22	2.2E+01	N/A	3.7E+02 N	7.0E+02	15A NCAC 2L	NO	DLBSL
	117-84-0	Di-n-octylphthalate	ND	ND	UG/L		0/3	10 - 11	1.1E+01	N/A	4.8E+00 C	1.0E+02	15A NCAC 2L	YES	DLASL
	206-44-0	Fluoranthene	ND	ND	UG/L		0/3	10 - 11	1.1E+01	N/A	1.5E+02 N	3.0E+02	15A NCAC 2L	NO	DLBSL
	86-73-7	Fluorene	ND	ND	UG/L		0/3	10 - 11	1.1E+01	N/A	1.5E+02 N	3.0E+02	15A NCAC 2L	NO	DLBSL
	118-74-1	Hexachlorobenzene	ND	ND	UG/L		0/3	10 - 11	1.1E+01	N/A	4.2E-02 C	1.0E+00 2.0E-02	MCL 15A NCAC 2L	YES	DLASL
	87-68-3	Hexachlorobutadiene	ND	ND	UG/L		0/3	10 - 11	1.1E+01	N/A	8.6E-01 C*	4.0E-01	15A NCAC 2L	YES	DLASL
	77-47-4	Hexachlorocyclopentadiene	ND	ND	UG/L		0/3	10 - 11	1.1E+01	N/A	2.2E+01 N	5.0E+01	MCL	NO	DLBSL
	67-72-1	Hexachloroethane	ND	ND	UG/L		0/3	10 - 11	1.1E+01	N/A	3.7E+00 C**	N/A		YES	DLASL
	193-39-5	Indeno(1,2,3-cd)pyrene	ND	ND	UG/L		0/3	10 - 11	1.1E+01	N/A	3.0E-02 C	5.0E-02	15A NCAC 2L	YES	DLASL
	78-59-1	Isophorone	ND	ND	UG/L		0/3	10 - 11	1.1E+01	N/A	7.1E+01 C	4.0E+01	15A NCAC 2L	NO	DLBSL
	91-20-3	Naphthalene	ND	ND	UG/L		0/3	10 - 11	1.1E+01	N/A	1.4E-01 C*	6.0E+00	15A NCAC 2L	YES	DLASL
	621-64-7	n-Nitroso-di-n-propylamine	ND	ND	UG/L		0/3	10 - 11	1.1E+01	N/A	9.6E-03 C	N/A		YES	DLASL
	86-30-6	n-Nitrosodiphenylamine	ND	ND	UG/L		0/3	10 - 11	1.1E+01	N/A	1.4E+01 C	N/A		NO	DLBSL
	98-95-3	Nitrobenzene	ND	ND	UG/L		0/3	10 - 11	1.1E+01	N/A	1.2E-01 C	N/A		YES	DLASL
	87-86-5	Pentachlorophenol	ND	ND	UG/L		0/3	20 - 22	2.2E+01	N/A	5.6E-01 C	1.0E+00 3.0E-01	MCL 15A NCAC 2L	YES	DLASL
	85-01-8	Phenanthrene	ND	ND	UG/L		0/3	10 - 11	1.1E+01	N/A	1.1E+03 N	2.0E+02	15A NCAC 2L	NO	DLBSL
	108-95-2	Phenol	ND	ND	UG/L		0/3	10 - 11	1.1E+01	N/A	1.1E+03 N	3.0E+01	15A NCAC 2L	NO	DLBSL
	129-00-0	Pyrene	ND	ND	UG/L		0/3	10 - 11	1.1E+01	N/A	1.1E+02 N	2.0E+02	15A NCAC 2L	NO	DLBSL
	72-54-8	4,4'-DDD	ND	ND	UG/L		0/3	0.051 - 0.053	5.3E-02	N/A	2.8E-01 C	1.0E-01	15A NCAC 2L	NO	DLBSL
	72-55-9	4,4'-DDE	ND	ND	UG/L		0/3	0.051 - 0.053	5.3E-02	N/A	2.0E-01 C	N/A		NO	DLBSL
	50-29-3	4,4'-DDT	ND	ND	UG/L		0/3	0.051 - 0.053	5.3E-02	N/A	2.0E-01 C*	1.0E-01	15A NCAC 2L	NO	DLBSL
	309-00-2	Aldrin	ND	ND	UG/L		0/3	0.051 - 0.053	5.3E-02	N/A	4.0E-03 C	N/A		YES	DLASL
	319-84-6	alpha-BHC	ND	ND	UG/L		0/3	0.051 - 0.053	5.3E-02	N/A	1.1E-02 C	2.0E-02	15A NCAC 2L	YES	DLASL
	5103-71-9	alpha-Chlordane	ND	ND	UG/L		0/3	0.051 - 0.053	5.3E-02	N/A	1.9E-01 C*	2.0E+00	MCL	NO	DLBSL
												1.0E-01	15A NCAC 2L		
	12674-11-2	Aroclor-1016	ND	ND	UG/L		0/3	0.51 - 0.53	5.3E-01	N/A	2.6E-01 C**	5.0E-01	MCL	YES	DLASL
	11104-28-2	Aroclor-1221	ND	ND	UG/L		0/3	0.51 - 0.53	5.3E-01	N/A	6.8E-03 C	5.0E-01	MCL	YES	DLASL
	11141-16-5	Aroclor-1232	ND	ND	UG/L		0/3	0.51 - 0.53	5.3E-01	N/A	6.8E-03 C	5.0E-01	MCL	YES	DLASL
	53469-21-9	Aroclor-1242	ND	ND	UG/L		0/3	0.51 - 0.53	5.3E-01	N/A	3.4E-02 C	5.0E-01	MCL	YES	DLASL
	12672-29-6	Aroclor-1248	ND	ND	UG/L		0/3	0.51 - 0.53	5.3E-01	N/A	3.4E-02 C	5.0E-01	MCL	YES	DLASL
	11097-69-1	Aroclor-1254	ND	ND	UG/L		0/3	0.51 - 0.53	5.3E-01	N/A	3.4E-02 C*	5.0E-01	MCL	YES	DLASL
	11096-82-5	Aroclor-1260	ND	ND	UG/L		0/3	0.51 - 0.53	5.3E-01	N/A	3.4E-02 C	5.0E-01	MCL	YES	DLASL
	319-85-7	beta-BHC	ND	ND	UG/L		0/3	0.051 - 0.053	5.3E-02	N/A	3.7E-02 C	2.0E-02	15A NCAC 2L	YES	DLASL
	319-86-8	delta-BHC	ND	ND	UG/L		0/3	0.051 - 0.053	5.3E-02	N/A	3.7E-02 C	2.0E-02	15A NCAC 2L	YES	DLASL
	60-57-1	Dieldrin	ND	ND	UG/L		0/3	0.051 - 0.053	5.3E-02	N/A	4.2E-03 C	2.0E-03	15A NCAC 2L	YES	DLASL
	959-98-8	Endosulfan I	ND	ND	UG/L		0/3	0.051 - 0.053	5.3E-02	N/A	2.2E+01 N	4.0E+01	15A NCAC 2L	NO	DLBSL
	33213-65-9	Endosulfan II	ND	ND	UG/L		0/3	0.051 - 0.053	5.3E-02	N/A	2.2E+01 N	4.0E+01	15A NCAC 2L	NO	DLBSL

Exposure Point	CAS Number	Chemical	Minimum [1] Concentration Qualifier	Maximum [1] Concentration Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration [2] Used for Screening	Background [3] Value	Screening [4] Toxicity Value	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for [5] Contaminant Deletion or Selection
	1031-07-8	Endosulfan sulfate	ND	ND	UG/L		0/3	0.051 - 0.053	5.3E-02	N/A	2.2E+01 N	4.0E+01	15A NCAC 2L	NO	DLBSL
	72-20-8	Endrin	ND	ND	UG/L		0/3	0.051 - 0.053	5.3E-02	N/A	1.1E+00 N	2.0E+00	MCL, 15A NCAC 2L	NO	DLBSL
	7421-93-4	Endrin aldehyde	ND	ND	UG/L		0/3	0.051 - 0.053	5.3E-02	N/A	1.1E+00 N	2.0E+00	15A NCAC 2L	NO	DLBSL
	53494-70-5	Endrin ketone	ND	ND	UG/L		0/3	0.051 - 0.053	5.3E-02	N/A	1.1E+00 N	2.0E+00	15A NCAC 2L	NO	DLBSL
	58-89-9	gamma-BHC (Lindane)	ND	ND	UG/L		0/3	0.051 - 0.053	5.3E-02	N/A	6.1E-02 C	2.0E-01 3.0E-02	MCL 15A NCAC 2L	NO	DLBSL
	5103-74-2	gamma-Chlordane	ND	ND	UG/L		0/3	0.051 - 0.053	5.3E-02	N/A	1.9E-01 C*	2.0E+00 1.0E-01	MCL 15A NCAC 2L	NO	DLBSL
	76-44-8	Heptachlor	ND	ND	UG/L		0/3	0.051 - 0.053	5.3E-02	N/A	1.5E-02 C	4.0E-01 8.0E-03	MCL 15A NCAC 2L	YES	DLASL
	1024-57-3	Heptachlor epoxide	ND	ND	UG/L		0/3	0.051 - 0.053	5.3E-02	N/A	7.4E-03 C*	2.0E-01 4.0E-03	MCL 15A NCAC 2L	YES	DLASL
	72-43-5	Methoxychlor	ND	ND	UG/L		0/3	0.051 - 0.053	5.3E-02	N/A	1.8E+01 N	4.0E+01	MCL, 15A NCAC 2L	NO	DLBSL
	8001-35-2	Toxaphene	ND	ND	UG/L		0/3	1 - 1.1	1.1E+00	N/A	6.1E-02 C	3.0E+00 3.0E-02	MCL 15A NCAC 2L	YES	DLASL
	7429-90-5	Aluminum	4.6E+01 J	3.4E+03	UG/L	IR15-TW05-09C	5/5	1000 - 1000	3.4E+03	1.9E+03	3.7E+03 N	50 - 200	SMCL	NO	BSL
	7440-36-0	Antimony	ND	ND	UG/L		0/5	20 - 20	2.0E+01	3.3E+00	1.5E+00 N	6.0E+00	MCL	YES	DLASL
	7440-38-2	Arsenic	3.2E+00 J	3.2E+00 J	UG/L	IR15-TW04-09C	1/5	20 - 20	3.2E+00	5.8E+00	4.5E-02 C	1.0E+01	MCL, 15A NCAC 2L	NO	BBK
	7440-39-3	Barium	1.9E+01 J	9.5E+01	UG/L	IR15-TW03D-09C	5/5	20 - 50	9.5E+01	8.6E+01	7.3E+02 N	2.0E+03 7.0E+02	MCL 15A NCAC 2L	NO	BSL
	7440-41-7	Beryllium	1.8E-01 J	1.8E-01 J	UG/L	IR15-TW03D-09C	1/5	2 - 2	1.8E-01	3.1E-01	7.3E+00 N	4.0E+00	MCL	NO	BSL, BBK
	7440-43-9	Cadmium	ND	ND	UG/L		0/5	6 - 6	6.0E+00	3.6E-01	1.8E+00 N	5.0E+00 2.0E+00	MCL 15A NCAC 2L	YES	DLASL
	7440-70-2	Calcium	3.6E+03	4.6E+04	UG/L	IR15-TW04-09C	5/5	1000 - 1000	4.6E+04	6.9E+04	N/A	N/A		NO	NUT, BBK
	7440-47-3	Chromium	1.7E+00 J	5.0E+00 J	UG/L	IR15-TW05-09C	2/5	20 - 20	5.0E+00	3.1E+00	4.3E-02 C	1.0E+02 1.0E+01	MCL 15A NCAC 2L	YES	ASL
	7440-48-4	Cobalt	6.3E-01 J	3.9E+00 J	UG/L	IR15-TW01-09C	4/5	5 - 5	3.9E+00	3.4E+00	1.1E+00 N	N/A		YES	ASL
	7440-50-8	Copper	2.8E+00 J	3.8E+00 J	UG/L	IR15-TW05-09C	3/5	20 - 20	3.8E+00	2.8E+00	1.5E+02 N	1.3E+03 1.0E+03	MCL 15A NCAC 2L	NO	BSL
	7439-89-6	Iron	1.0E+03	2.6E+04	UG/L	IR15-TW01-09C	5/5	150 - 150	2.6E+04	6.0E+03	2.6E+03 N	3.0E+02	SMCL, 15A NCAC 2L	YES	ASL
	7439-92-1	Lead	ND	ND	UG/L		0/5	20 - 20	2.0E+01	2.8E+00	N/A	1.5E+01	MCL, 15A NCAC 2L	YES	DLASL
	7439-95-4	Magnesium	3.9E+02	4.6E+03	UG/L	IR15-TW03D-09C	5/5	250 - 250	4.6E+03	6.4E+03	N/A	N/A		NO	NUT, BBK
	7439-96-5	Manganese	5.2E+00	4.4E+02	UG/L	IR15-TW01-09C	5/5	5 - 5	4.4E+02	2.1E+02	8.8E+01 N	5.0E+01	SMCL, 15A NCAC 2L	YES	ASL
	7439-97-6	Mercury	ND	ND	UG/L		0/5	0.2 - 0.2	2.0E-01	1.0E-01	1.1E+00 N	2.0E+00 1.0E+00	MCL 15A NCAC 2L	NO	DLBSL
	7440-02-0	Nickel	2.3E+00 J	3.0E+01	UG/L	IR15-TW01-09C	4/5	10 - 10	3.0E+01	8.0E+00	7.3E+01 N	1.0E+02	15A NCAC 2L	NO	BSL
	7440-09-7	Potassium	6.2E+02 J	2.5E+03	UG/L	IR15-TW02-09C	5/5	1000 - 1000	2.5E+03	3.3E+03	N/A	N/A		NO	NUT, BBK
	7782-49-2	Selenium	ND	ND	UG/L		0/5	20 - 20	2.0E+01	3.1E+00	1.8E+01 N	5.0E+01 2.0E+01	MCL 15A NCAC 2L	YES	DLASL

Table 2.6

OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN

Camp Johnson Site 15 MCB Camp Lejeune, North Carolina

Scenario Timeframe: Future
Medium: Groundwater
Exposure Medium: Groundwater

Exposure Point	CAS Number	Chemical	Minimum [1] Concentration Qualifier	Maximum [1] Concentration Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration [2] Used for Screening		Screening [4] Toxicity Value	Potential ARAR/TBC Value	Potential ARAR/TBC Source	Flag	Rationale for [5] Contaminant Deletion or Selection
	7440-22-4	Silver	ND	ND	UG/L		0/5	20 - 20	2.0E+01	7.7E-01	1.8E+01 N	2.0E+01	15A NCAC 2L	YES	DLASL
												1.0E+02	SMCL		
	7440-23-5	Sodium	1.6E+03 J	8.0E+03	UG/L	IR15-TW03D-09C	5/5	2500 - 2500	8.0E+03	2.3E+04	N/A	N/A		NO	NUT, BBK
	7440-28-0	Thallium	3.2E+00 J	3.2E+00 J	UG/L	IR15-TW04-09C	1/5	30 - 30	3.2E+00	3.8E+00	N/A	2.0E+00	MCL	NO	NTX, BBK
	7440-62-2	Vanadium	ND	ND	UG/L		0/5	50 - 50	5.0E+01	4.7E+00	1.8E+01 N	N/A		YES	DLASL
	7440-66-6	Zinc	5.3E+00 J	1.1E+01 J	UG/L	IR15-TW03-09C	5/5	50 - 50	1.1E+01	4.2E+01	1.1E+03 N	1.0E+03	15A NCAC 2L	NO	BSL, BBK
												5.0E+03	SMCL		

[1] Minimum/Maximum detected concentrations.

[2] Maximum concentration is used for screening. If the chemical was not detected, the maximum detection limit is used for screening.

[3] Background values are two times the arithmetic mean basewide background shallow groundwater concentrations. Background values are from Final Base Background Soil Study Report, Marine Corps Base Camp Lejeune, North Carolina , Baker Environmental, April 25, 2001.

[4] Oak Ridge National Laboratory (ORNL). May 17, 2010. Regional Screening Levels for Chemical Contaminants at Superfund Sites.

http://epa-prgs.ornl.gov/chemicals/index.shtml. Adjusted (noncarcinogenic RSLs adjusted by dividing by 10) tap water RSLs.

RSL value for 1,4-Dichlorobenzene used as a surrogate for 1,3-Dichlorobenzene

RSL value for methoxychlor used as surrogate for 4-chlorophenyl-phenylether.

RSL value for 2-Nitroaniline used as surrogate for 3-Nitroaniline.

RSL value for nitrobenzene used as surrogate for 4-nitrophenol.

 $\label{eq:RSL} \textit{RSL} \ \textit{value} \ \textit{for} \ \textit{acenaphthene} \ \textit{used} \ \textit{as} \ \textit{surrogate} \ \textit{for} \ \textit{acenaphthylene}.$

RSL value for pyrene used as surrogate for benzo(g,h,i)perylene.

RSL value for anthracene used as surrogate for phenanthrene.

RSL value for technical chlordane used as surrogate for alpha-chlordane.

RSL value for technical-HCH used as surrogate for delta-BHC.
RSL value for technical chlordane used as surrogate for gamma-chlordane.

RSL value for 1,3-dichloropropene used as a surrogate for cis-1,3-dichloropropene and trans-1,3-dichloropropene.

RSL value for endosulfan used as surrogate for endosulfan I, endosulfan II, and endosulfan sulfate.

RSL value for endrin used as surrogate for endrin aldehyde and endrin ketone.

RSL value for 2-chlorophenol used as surrogate for 4-chloro-3-methylphenol and 2-nitrophenol.

RSL value for chromium VI used for total chromium.

[5] Rationale Codes

Selection Reason: Above Screening Levels (ASL)

Detection Limit Above Screening Level (DLASL), not quantitatively evaluated in HHRA

Deletion Reason: No Toxicity Information (NTX)

Essential Nutrient (NUT)
Below Screening Level (BSL)
Below Background (BBK)

Detection Limit Below Screening Level (DLBSL)

COPC = Chemical of Potential Concern

ARAR/TBC = Applicable or Relevant and Appropriate Requirement/

To Be Considered

MCL = Maximum Contaminant Level from EPA's National Primary Drinking Water Standards

SMCL = Secondary Maximum Contaminant Level

15A NCAC 2L = North Carolina Classifications and Groundwater Quality Standards,

January 2010.

J = Estimated Value

C* = N screening level < 100x C screening level, therefore

N screening value/10 used as screening level

 $C^{\star\star}$ = N screening level < 10x C screening level, therefore

N screening value/10 used as screening level

N = Noncarcinogenic

NA = Not available/not applicable

ND = Not detected

UG/L = Micrograms per liter

TABLE 2.6a

Risk Ratio Screening for Groundwater, Maximum Detected Concentration Camp Johnson Site 15 MCB Camp Lejeune, North Carolina

Analyte	Detection Frequency	Detected	Sample Location of Maximum Detected Concentration	Tap Water RSL	Acceptable Risk Level	Corresponding Hazard Index ^a	Corresponding Cancer Risk ^b	Target Organ
Metals (ug/L)								
Chromium	2 / 5	5.0E+00 J	IR15-TW05-09C	4.3E-02	1E-06	NA	1E-04	NA
Cobalt	4 / 5	3.9E+00 J	IR15-TW01-09C	1.1E+01	1	0.4		Thyroid
Iron	5 / 5	2.6E+04	IR15-TW01-09C	2.6E+04	1	1		Gastrointestinal
Manganese	5 / 5	4.4E+02	IR15-TW01-09C	8.8E+02	1	0.5		Central Nervous System
Cumulative Corresponding Hazard Index ^c						1.8		
Cumulative Corresponding Cancer Risk ^a							1E-04	
	-		•			Total	Gastrointestinal HI =	1.0
Notes:						Total Central I	Nervous System HI =	0.5

Total Thyroid HI =

0.4

Constituent selected as COPC if it contributes to an overall Hazard Index by target organ greater than 0.5 or Cumulative Corresponding Cancer Risk greater than 5E-05, otherwise, constituent not selected as COPC.

Constituents selected as COPCs are indicated by shading.

COPC = Chemical of Potential Concern

HI = Hazard Index

J = Estimated Value

ug/L = micrograms per liter

NA = Not available/not applicable

^a Corresponding Hazard Index equals maximum detected concentration divided by the RSL divided by the acceptable risk level.

^b Corresponding Cancer Risk equals maximum detected concentration divided by the RSL divided by the acceptable risk level.

^c Cumulative Corresponding Hazard Index equals sum of Corresponding Hazard Indices for each constituent.

^d Cumulative Corresponding Cancer Risk equals sum of Corresponding Cancer Risks for each constituent.

TABLE 2.6b

Risk Ratio Screening for Groundwater, 95% UCL Concentration Camp Johnson Site 15 MCB Camp Lejeune, North Carolina

Analyte	Detection Frequency	95% UCL	95% UCL Rationale	Tap Water RSL	Acceptable Risk Level	Corresponding Hazard Index ^a	Corresponding Cancer Risk ^b	Target Organ
Metals (ug/L)								
Chromium	2 / 5	5.0E+00 Max	4, 5	4.5E-02	1E-06	NA	1E-04	NA
Iron	5 / 5	1.9E+04 95% Stud-t	1, 2, 3	2.6E+04	1	0.7	NA	Gastrointestinal
Cumulative Corresponding Hazard Index ^c						0.7		
Cumulative Corresponding Cancer Risk ^a							1E-04	
						Total	Gastrointestinal HI =	0.7

Notes:

^a Corresponding Hazard Index equals 95% UCL concentration divided by the RSL divided by the acceptable risk level.

Constituent selected as COPC if it contributes to an overall Hazard Index by target organ greater than 0.5 or Cumulative Corresponding Cancer Risk greater than 5E-05,

otherwise, constituent not selected as COPC.

Constituents selected as COPCs are indicated by shading.

COPC = Chemical of Potential Concern

HI = Hazard Index

NA = Not available/not applicable

ug/L = micrograms per liter

ProUCL, Version 4.00.05 used to determine distribution of data and calculate 95% UCL, following recommendations in users guide (USEPA. May 2010. ProUCL, Version 4.0. Prepared by Lockheed Martin Environmental Services).

Options: Maximum detected concentration (Max); 95% Student's-t UCL (95% Stud-t)

Upper Confidence Limit (UCL) Rationale:

- (1) Shapiro-Wilk W Test/Lilliefors test indicates data are log-normally distributed.
- (2) Shapiro-Wilk W Test/Lilliefors indicates data are normally distributed.
- (3) Test indicates data are gamma distributed.
- (4) Distribution tests are inconclusive
- (5) Max value used because 95% UCL greater than max.
- (6) Lead evaluated using arithmetic mean concentration in lead models, therefore, arithmetic mean concentration presented here.

^b Corresponding Cancer Risk equals 95% UCL concentration divided by the RSL divided by the acceptable risk level

^c Cumulative Corresponding Hazard Index equals sum of Corresponding Hazard Indices for each constituent.

^d Cumulative Corresponding Cancer Risk equals sum of Corresponding Cancer Risks for each constituent.

Scenario Timeframe: Current/Future Medium: Surface Soil

Exposure Point	CAS Number	Chemical	Minimum [1] Concentration Qualifier	Maximum [1] Concentration Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration [2] Used for Screening	Background [3] Value	Screening [4] Toxicity Value	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for [5] Contaminant Deletion or Selection
0:- 4=													LIGHANA		DI DOI
Site 17	71-55-6	1,1,1-Trichloroethane	ND	ND	MG/KG		0/4	0.003 - 0.0065	6.5E-03	N/A	6.4E+02 NS		NCPSRG	NO	DLBSL
	79-34-5	1,1,2,2-Tetrachloroethane	ND	ND	MG/KG		0/4	0.003 - 0.0065	6.5E-03	N/A	5.6E-01 C	1.2E-03	NCPSRG	NO	DLBSL
	76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane(Freon-113)	ND	ND	MG/KG		0/4	0.003 - 0.0065	6.5E-03	N/A	9.1E+02 NS		NCPSRG	NO	DLBSL
	79-00-5	1,1,2-Trichloroethane	ND	ND	MG/KG		0/4	0.003 - 0.0065	6.5E-03	N/A	1.1E+00 C	N/A		NO	DLBSL
	75-34-3	1,1-Dichloroethane	ND	ND	MG/KG		0/4	0.003 - 0.0065	6.5E-03	N/A	3.3E+00 C	3.0E-02	NCPSRG	NO	DLBSL
	75-35-4	1,1-Dichloroethene	ND	ND	MG/KG		0/4	0.003 - 0.0065	6.5E-03	N/A	2.4E+01 N	4.6E-02	NCPSRG	NO	DLBSL
	120-82-1	1,2,4-Trichlorobenzene	ND	ND	MG/KG		0/4	0.003 - 0.0065	6.5E-03	N/A	6.2E+00 C**	2.2E+00	NCPSRG	NO	DLBSL
	96-12-8	1,2-Dibromo-3-chloropropane	ND	ND	MG/KG		0/4	0.003 - 0.0065	6.5E-03	N/A	5.4E-03 C	2.5E-04	NCPSRG	YES	DLASL
	106-93-4	1,2-Dibromoethane	ND	ND	MG/KG		0/4	0.003 - 0.0065	6.5E-03	N/A	3.4E-02 C	9.7E-05	NCPSRG	NO	DLBSL
	95-50-1	1,2-Dichlorobenzene	ND	ND	MG/KG		0/4	0.003 - 0.0065	6.5E-03	N/A	1.9E+02 N	2.4E-01	NCPSRG	NO	DLBSL
	107-06-2	1,2-Dichloroethane	ND	ND	MG/KG		0/4	0.003 - 0.0065	6.5E-03	N/A	4.3E-01 C	2.0E-03	NCPSRG	NO	DLBSL
	78-87-5	1,2-Dichloropropane	ND	ND	MG/KG		0/4	0.003 - 0.0065	6.5E-03	N/A	9.0E-01 C*	3.3E-03	NCPSRG	NO	DLBSL
	541-73-1	1,3-Dichlorobenzene	ND	ND	MG/KG		0/4	0.003 - 0.0065	6.5E-03	N/A	2.4E+00 C	N/A		NO	DLBSL
	106-46-7	1,4-Dichlorobenzene	ND	ND	MG/KG		0/4	0.003 - 0.0065	6.5E-03	N/A	2.4E+00 C	7.0E-02	NCPSRG	NO	DLBSL
	78-93-3	2-Butanone	2.8E-03 J	2.3E-02 J	MG/KG	IR17-SS04-00-01-09C	4/5	0.0061 - 0.013	2.3E-02	N/A	2.8E+03 N	1.6E+01	NCPSRG	NO	BSL
	591-78-6	2-Hexanone	ND	ND	MG/KG		0/4	0.0061 - 0.013	1.3E-02	N/A	2.1E+01 N	1.2E+00	NCPSRG	NO	DLBSL
	108-10-1	4-Methyl-2-pentanone	ND	ND	MG/KG		0/4	0.0061 - 0.013	1.3E-02	N/A	5.3E+02 N	N/A		NO	DLBSL
	67-64-1	Acetone	7.0E-02 J	9.0E-01 J	MG/KG	IR17-SS04-00-01-09C	4/5	0.0061 - 0.013	9.0E-01	N/A	6.1E+03 N	2.4E+01	NCPSRG	NO	BSL
	71-43-2	Benzene	ND	ND	MG/KG		0/4	0.003 - 0.0065	6.5E-03	N/A	1.1E+00 C*	7.3E-02	NCPSRG	NO	DLBSL
	75-27-4	Bromodichloromethane	ND	ND	MG/KG		0/4	0.003 - 0.0065	6.5E-03	N/A	2.7E-01 C	2.9E-03	NCPSRG	NO	DLBSL
	75-25-2	Bromoform	ND	ND	MG/KG		0/4	0.003 - 0.0065	6.5E-03	N/A	6.1E+01 C*	1.9E-02	NCPSRG	NO	DLBSL
	74-83-9	Bromomethane	ND	ND	MG/KG		0/3	0.0092 - 0.011	1.1E-02	N/A	7.3E-01 N	N/A		NO	DLBSL
	75-15-0	Carbon disulfide	ND	ND	MG/KG		0/4	0.003 - 0.0065	6.5E-03	N/A	8.2E+01 N	3.8E+00	NCPSRG	NO	DLBSL
	56-23-5	Carbon tetrachloride	ND	ND	MG/KG		0/4	0.003 - 0.0065	6.5E-03	N/A	6.1E-01 C	2.0E-03	NCPSRG	NO	DLBSL
	108-90-7	Chlorobenzene	ND	ND	MG/KG		0/4	0.003 - 0.0065	6.5E-03	N/A	2.9E+01 N	4.5E-01	NCPSRG	NO	DLBSL
	75-00-3	Chloroethane	ND	ND	MG/KG		0/4	0.0061 - 0.013	1.3E-02	N/A	1.5E+03 N	1.6E+01	NCPSRG	NO	DLBSL
	67-66-3	Chloroform	1.3E-02 J	1.3E-02 J	MG/KG	IR17-SS02-00-01-09C	1/4	0.003 - 0.0065	1.3E-02	N/A	2.9E-01 C	3.4E-01	NCPSRG	NO	BSL
	74-87-3	Chloromethane	6.5E-03 J	6.5E-03 J	MG/KG	IR17-SS01-00-01-09C	1/4	0.0061 - 0.013	6.5E-03	N/A	1.2E+01 N	1.5E-02	NCPSRG	NO	BSL
	156-59-2	cis-1,2-Dichloroethene	ND	ND	MG/KG		0/4	0.003 - 0.0065	6.5E-03	N/A	7.8E+01 N	3.6E-01	NCPSRG	NO	DLBSL
	10061-01-5	cis-1,3-Dichloropropene	ND	ND	MG/KG		0/4	0.003 - 0.0065	6.5E-03	N/A	1.7E+00 C*	2.3E-03	NCPSRG	NO	DLBSL
	110-82-7	Cyclohexane	ND	ND	MG/KG		0/4	0.003 - 0.0065	6.5E-03	N/A	1.2E+02 NS			NO	DLBSL
	124-48-1	Dibromochloromethane	ND	ND	MG/KG		0/4	0.003 - 0.0065	6.5E-03	N/A	6.8E-01 C	1.9E-03	NCPSRG	NO	DLBSL
	75-71-8	Dichlorodifluoromethane (Freon-12)	ND	ND	MG/KG		0/4	0.003 - 0.0065	6.5E-03	N/A	1.8E+01 N	2.9E+01	NCPSRG	NO	DLBSL
		· · · · ·	ND ND	ND ND			0/4	0.003 - 0.0065		N/A N/A			NCPSRG	NO	_
	100-41-4	Ethylbenzene			MG/KG				6.5E-03	1	0.12100 0	8.1E+00			DLBSL
	98-82-8 79-20-9	Isopropylbenzene Methyl acetate	ND 3.6E-03 J	ND 7.0E-02 J	MG/KG MG/KG	IR17-SS04-00-01-09C	0/4 4/5	0.003 - 0.0065 0.003 - 0.0065	6.5E-03 7.0E-02	N/A N/A	2.1E+02 N 7.8E+03 N	1.3E+00 N/A	NCPSRG	NO NO	DLBSL BSL

Scenario Timeframe: Current/Future Medium: Surface Soil

Exposure Point	CAS Number	Chemical	Minimum [1] Concentration Qualifier	Maximum [1] Concentration Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration [2] Used for Screening	Background [3] Value	Screening [4] Toxicity Value	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for [5 Contaminant Deletion or Selection
	108-87-2	Methylcyclohexane	ND	ND	MG/KG		0/4	0.003 - 0.0065	6.5E-03	N/A	N/A	N/A		NO	NTX
	75-09-2	Methylene chloride	ND	ND	MG/KG		0/4	0.0061 - 0.013	1.3E-02	N/A	1.1E+01 C	2.3E-02	NCPSRG	NO	DLBSL
	1634-04-4	Methyl-tert-butyl ether (MTBE)	ND	ND	MG/KG		0/4	0.003 - 0.0065	6.5E-03	N/A	4.3E+01 C	8.5E-02	NCPSRG	NO	DLBSL
	100-42-5	Styrene	ND	ND	MG/KG		0/4	0.003 - 0.0065	6.5E-03	N/A	6.3E+02 N	9.2E-01	NCPSRG	NO	DLBSL
	127-18-4	Tetrachloroethene	ND	ND	MG/KG		0/4	0.003 - 0.0065	6.5E-03	N/A	5.5E-01 C	5.0E-03	NCPSRG	NO	DLBSL
	108-88-3	Toluene	ND	ND	MG/KG		0/4	0.003 - 0.0065	6.5E-03	N/A	5.0E+02 N	5.5E+00	NCPSRG	NO	DLBSL
	156-60-5	trans-1,2-Dichloroethene	ND	ND	MG/KG		0/4	0.003 - 0.0065	6.5E-03	N/A	1.5E+01 N	5.1E-01	NCPSRG	NO	DLBSL
	10061-02-6	trans-1,3-Dichloropropene	ND	ND	MG/KG		0/4	0.003 - 0.0065	6.5E-03	N/A	1.7E+00 C*	2.3E-03	NCPSRG	NO	DLBSL
	79-01-6	Trichloroethene	ND	ND	MG/KG		0/4	0.003 - 0.0065	6.5E-03	N/A	2.8E+00 C	1.8E-02	NCPSRG	NO	DLBSL
	75-69-4	Trichlorofluoromethane(Freon-11)	ND	ND	MG/KG		0/4	0.003 - 0.0065	6.5E-03	N/A	7.9E+01 N	2.4E+01	NCPSRG	NO	DLBSL
	75-01-4	Vinyl chloride	ND	ND	MG/KG		0/4	0.0061 - 0.013	1.3E-02	N/A	6.0E-02 C	1.9E-04	NCPSRG	NO	DLBSL
	1330-20-7	Xylene, total	ND	ND	MG/KG		0/4	0.003 - 0.0065	6.5E-03	N/A	6.3E+01 N	6.0E+00	NCPSRG	NO	DLBSL
	92-52-4	1,1-Biphenyl	ND	ND	MG/KG		0/5	0.18 - 0.24	2.4E-01	N/A	2.1E+02 NS	4.3E+01	NCPSRG	NO	DLBSL
	108-60-1	2,2'-Oxybis(1-chloropropane)	ND	ND	MG/KG		0/5	0.18 - 0.24	2.4E-01	N/A	4.6E+00 C	N/A		NO	DLBSL
	95-95-4	2,4,5-Trichlorophenol	ND	ND	MG/KG		0/5	0.18 - 0.24	2.4E-01	N/A	6.1E+02 N	N/A		NO	DLBSL
	120-83-2	2,4-Dichlorophenol	ND	ND	MG/KG		0/5	0.18 - 0.24	2.4E-01	N/A	1.8E+01 N	N/A		NO	DLBSL
	105-67-9	2,4-Dimethylphenol	ND	ND	MG/KG		0/5	0.18 - 0.24	2.4E-01	N/A	1.2E+02 N	1.4E+00	NCPSRG	NO	DLBSL
	51-28-5	2,4-Dinitrophenol	ND	ND	MG/KG		0/5	0.18 - 0.24	2.4E-01	N/A	1.2E+01 N	N/A		NO	DLBSL
	121-14-2	2,4-Dinitrotoluene	ND	ND	MG/KG		0/5	0.18 - 0.24	2.4E-01	N/A	1.6E+00 C*	N/A		NO	DLBSL
	606-20-2	2,6-Dinitrotoluene	ND	ND	MG/KG		0/5	0.18 - 0.24	2.4E-01	N/A	6.1E+00 N	N/A		NO	DLBSL
	91-58-7	2-Chloronaphthalene	ND	ND	MG/KG		0/5	0.18 - 0.24	2.4E-01	N/A	1.8E+02 NS	N/A		NO	DLBSL
	95-57-8	2-Chlorophenol	ND	ND	MG/KG		0/5	0.18 - 0.24	2.4E-01	N/A	3.9E+01 N	4.1E-03	NCPSRG	NO	DLBSL
	91-57-6	2-Methylnaphthalene	ND	ND	MG/KG		0/5	0.18 - 0.24	2.4E-01	N/A	3.1E+01 N	1.6E+00	NCPSRG	NO	DLBSL
	95-48-7	2-Methylphenol	ND	ND	MG/KG		0/5	0.18 - 0.24	2.4E-01	N/A	3.1E+02 N	N/A		NO	DLBSL
	88-74-4	2-Nitroaniline	ND	ND	MG/KG		0/5	0.18 - 0.24	2.4E-01	N/A	6.1E+01 N	N/A		NO	DLBSL
	88-75-5	2-Nitrophenol	ND	ND	MG/KG		0/5	0.18 - 0.24	2.4E-01	N/A	3.9E+01 N	N/A		NO	DLBSL
	91-94-1	3,3'-Dichlorobenzidine	ND	ND	MG/KG		0/5	0.18 - 0.24	2.4E-01	N/A	1.1E+00 C	N/A		NO	DLBSL
	99-09-2	3-Nitroaniline	ND	ND	MG/KG		0/5	0.18 - 0.24	2.4E-01	N/A	N/A	N/A		NO	NTX
	534-52-1	4,6-Dinitro-2-methylphenol	ND	ND	MG/KG		0/5	0.18 - 0.24	2.4E-01	N/A	6.1E-01 N	N/A		NO	DLBSL
	101-55-3	4-Bromophenyl-phenylether	ND	ND	MG/KG		0/5	0.18 - 0.24	2.4E-01	N/A	N/A	N/A		NO	NTX
	59-50-7	4-Chloro-3-methylphenol	ND	ND	MG/KG		0/5	0.18 - 0.24	2.4E-01	N/A	6.1E+02 N	N/A		NO	DLBSL
	106-47-8	4-Chloroaniline	ND	ND	MG/KG		0/5	0.18 - 0.24	2.4E-01	N/A	2.4E+00 C	N/A		NO	DLBSL
	7005-72-3	4-Chlorophenyl-phenylether	ND	ND	MG/KG		0/5	0.18 - 0.24	2.4E-01	N/A	3.1E+01 N	N/A		NO	DLBSL
	106-44-5	4-Methylphenol	ND	ND	MG/KG		0/5	0.18 - 0.24	2.4E-01	N/A	3.1E+01 N	4.0E-01	NCPSRG	NO	DLBSL
	100-01-6	4-Nitroaniline	ND	ND	MG/KG		0/5	0.18 - 0.24	2.4E-01	N/A	2.4E+01 C*	N/A		NO	DLBSL
	100-02-7	4-Nitrophenol	ND	ND	MG/KG		0/5	0.18 - 0.24	2.4E-01	N/A	4.8E+00 C*	N/A		NO	DLBSL
	83-32-9	Acenaphthene	ND	ND	MG/KG		0/5	0.18 - 0.24	2.4E-01	N/A	3.4E+02 N	8.4E+00	NCPSRG	NO	DLBSL

Scenario Timeframe: Current/Future

Medium: Surface Soil

Exposure Point	CAS Number	Chemical	Minimum [1] Concentration Qualifier	Maximum [1] Concentration Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration [2] Used for Screening	Background [3] Value	Screening [4] Toxicity Value	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for [5] Contaminant Deletion or Selection
	208-96-8	Acenaphthylene	ND	ND	MG/KG		0/5	0.18 - 0.24	2.4E-01	N/A	3.4E+02 N	1.1E+01	NCPSRG	NO	DLBSL
	98-86-2	Acetophenone	ND	ND	MG/KG		0/5	0.18 - 0.24	2.4E-01	N/A	7.8E+02 N	N/A		NO	DLBSL
	120-12-7	Anthracene	ND	ND	MG/KG		0/5	0.18 - 0.24	2.4E-01	N/A	1.7E+03 N	6.6E+02	NCPSRG	NO	DLBSL
	1912-24-9	Atrazine	ND	ND	MG/KG		0/5	0.18 - 0.24	2.4E-01	N/A	2.1E+00 C	2.5E-02	NCPSRG	NO	DLBSL
	100-52-7	Benzaldehyde	ND	ND	MG/KG		0/5	0.18 - 0.24	2.4E-01	N/A	7.8E+02 N	N/A		NO	DLBSL
	56-55-3	Benzo(a)anthracene	ND	ND	MG/KG		0/5	0.035 - 0.049	4.9E-02	N/A	1.5E-01 C	1.8E-01	NCPSRG	NO	DLBSL
	50-32-8	Benzo(a)pyrene	ND	ND	MG/KG		0/5	0.035 - 0.049	4.9E-02	N/A	1.5E-02 C	5.9E-02	NCPSRG	YES	DLASL
	205-99-2	Benzo(b)fluoranthene	ND	ND	MG/KG		0/5	0.035 - 0.049	4.9E-02	N/A	1.5E-01 C	6.0E-01	NCPSRG	NO	DLBSL
	191-24-2	Benzo(g,h,i)perylene	ND	ND	MG/KG		0/5	0.18 - 0.24	2.4E-01	N/A	1.7E+02 N	3.6E+02	NCPSRG	NO	DLBSL
	207-08-9	Benzo(k)fluoranthene	ND	ND	MG/KG		0/5	0.18 - 0.24	2.4E-01	N/A	1.5E+00 C	5.9E+00	NCPSRG	NO	DLBSL
	111-91-1	bis(2-Chloroethoxy)methane	ND	ND	MG/KG		0/5	0.18 - 0.24	2.4E-01	N/A	1.8E+01 N	N/A		NO	DLBSL
	111-44-4	bis(2-Chloroethyl)ether	ND	ND	MG/KG		0/5	0.18 - 0.24	2.4E-01	N/A	2.1E-01 C	1.4E-04	NCPSRG	YES	DLASL
	117-81-7	bis(2-Ethylhexyl)phthalate	9.6E-02 J	9.6E-02 J	MG/KG	IR17-SS01-00-01-09C	1/5	0.18 - 0.24	9.6E-02	N/A	3.5E+01 C*	7.2E+00	NCPSRG	NO	BSL
	85-68-7	Butylbenzylphthalate	ND	ND	MG/KG		0/5	0.18 - 0.24	2.4E-01	N/A	2.6E+02 C*	1.5E+02	NCPSRG	NO	DLBSL
	105-60-2	Caprolactam	ND	ND	MG/KG		0/5	0.18 - 0.24	2.4E-01	N/A	3.1E+03 N	1.8E+01	NCPSRG	NO	DLBSL
	86-74-8	Carbazole	ND	ND	MG/KG		0/5	0.18 - 0.24	2.4E-01	N/A	N/A	N/A		NO	NTX
	218-01-9	Chrysene	ND	ND	MG/KG		0/5	0.18 - 0.24	2.4E-01	N/A	1.5E+01 C	1.8E+01	NCPSRG	NO	DLBSL
	53-70-3	Dibenz(a,h)anthracene	ND	ND	MG/KG		0/5	0.035 - 0.049	4.9E-02	N/A	1.5E-02 C	1.9E-01	NCPSRG	YES	DLASL
	132-64-9	Dibenzofuran	ND	ND	MG/KG		0/5	0.18 - 0.24	2.4E-01	N/A	7.8E+00 N	4.7E+00	NCPSRG	NO	DLBSL
	84-66-2	Diethylphthalate	ND	ND	MG/KG		0/5	0.18 - 0.24	2.4E-01	N/A	4.9E+03 N	3.7E+01	NCPSRG	NO	DLBSL
	131-11-3	Dimethyl phthalate	ND	ND	MG/KG		0/5	0.18 - 0.24	2.4E-01	N/A	N/A	N/A		NO	NTX
	84-74-2	Di-n-butylphthalate	9.3E-02 J	9.3E-02 J	MG/KG	IR17-SS01-00-01-09C	1/5	0.18 - 0.24	9.3E-02	N/A	6.1E+02 N	1.9E+01	NCPSRG	NO	BSL
	117-84-0	Di-n-octylphthalate	ND	ND	MG/KG		0/5	0.18 - 0.24	2.4E-01	N/A	3.5E+01 C*	3.8E+01	NCPSRG	NO	DLBSL
	206-44-0	Fluoranthene	ND	ND	MG/KG		0/5	0.18 - 0.24	2.4E-01	N/A	2.3E+02 N	3.3E+02	NCPSRG	NO	DLBSL
	86-73-7	Fluorene	ND	ND	MG/KG		0/5	0.18 - 0.24	2.4E-01	N/A	2.3E+02 N	5.6E+01	NCPSRG	NO	DLBSL
	118-74-1	Hexachlorobenzene	ND	ND	MG/KG		0/5	0.18 - 0.24	2.4E-01	N/A	3.0E-01 C	2.6E-03	NCPSRG	NO	DLBSL
	87-68-3	Hexachlorobutadiene	ND	ND	MG/KG		0/5	0.18 - 0.24	2.4E-01	N/A	6.1E+00 C**	8.7E-03	NCPSRG	NO	DLBSL
	77-47-4	Hexachlorocyclopentadiene	ND	ND	MG/KG		0/5	0.18 - 0.24	2.4E-01	N/A	3.7E+01 N	N/A		NO	DLBSL
	67-72-1	Hexachloroethane	ND	ND	MG/KG		0/5	0.18 - 0.24	2.4E-01	N/A	6.1E+00 C**	N/A		NO	DLBSL
	193-39-5	Indeno(1,2,3-cd)pyrene	ND	ND	MG/KG		0/5	0.035 - 0.049	4.9E-02	N/A	1.5E-01 C	2.0E+00	NCPSRG	NO	DLBSL
	78-59-1	Isophorone	ND	ND	MG/KG		0/5	0.035 - 0.049	4.9E-02	N/A	5.1E+02 C*	2.0E-01	NCPSRG	NO	DLBSL
	91-20-3	Naphthalene	ND	ND	MG/KG		0/5	0.18 - 0.24	2.4E-01	N/A	3.6E+00 C*	2.1E-01	NCPSRG	NO	DLBSL
	621-64-7	n-Nitroso-di-n-propylamine	ND	ND	MG/KG		0/5	0.035 - 0.049	4.9E-02	N/A	6.9E-02 C	N/A		NO	DLBSL
	86-30-6	n-Nitrosodiphenylamine	ND	ND	MG/KG		0/5	0.18 - 0.24	2.4E-01	N/A	9.9E+01 C	N/A		NO	DLBSL
	98-95-3	Nitrobenzene	ND	ND	MG/KG		0/5	0.18 - 0.24	2.4E-01	N/A	4.8E+00 C*	N/A		NO	DLBSL
	87-86-5	Pentachlorophenol	ND	ND	MG/KG		0/5	0.18 - 0.24	2.4E-01	N/A	3.0E+00 C	3.1E-02	NCPSRG	NO	DLBSL
	85-01-8	Phenanthrene	ND ND	ND	MG/KG		0/5	0.18 - 0.24	2.4E-01	N/A	1.7E+03 N	5.7E+01	NCPSRG	NO	DLBSL

Scenario Timeframe: Current/Future Medium: Surface Soil

Exposure Point	CAS Number	Chemical	Minimum [1] Concentration Qualifier	Maximum [1] Concentration Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration [2] Used for Screening	Background [3] Value	Screening [4] Toxicity Value	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for [5] Contaminant Deletion or Selection
	108-95-2	Phenol	ND	ND	MG/KG		0/5	0.18 - 0.24	2.4E-01	N/A	1.8E+03 N	2.3E-01	NCPSRG	NO	DLBSL
	129-00-0	Pyrene	ND	ND	MG/KG		0/5	0.18 - 0.24	2.4E-01	N/A	1.7E+02 N	2.2E+02	NCPSRG	NO	DLBSL
	72-54-8	4,4'-DDD	ND	ND	MG/KG		0/5	0.0017 - 0.0025	2.5E-03	N/A	2.0E+00 C	2.4E-01	NCPSRG	NO	DLBSL
	72-55-9	4,4'-DDE	6.3E-04 J	2.2E-03 J	MG/KG	IR17-SS05-00-01-09C	4/5	0.0017 - 0.0025	2.2E-03	N/A	1.4E+00 C	N/A		NO	BSL
	50-29-3	4,4'-DDT	9.0E-04 J	1.9E-03 J	MG/KG	IR17-SS02-00-01-09C	3/5	0.0017 - 0.0025	1.9E-03	N/A	1.7E+00 C*	3.4E-01	NCPSRG	NO	BSL
	309-00-2	Aldrin	ND	ND	MG/KG		0/5	0.0017 - 0.0025	2.5E-03	N/A	2.9E-02 C*	N/A		NO	DLBSL
	319-84-6	alpha-BHC	ND	ND	MG/KG		0/5	0.0017 - 0.0025	2.5E-03	N/A	7.7E-02 C	1.2E-03	NCPSRG	NO	DLBSL
	5103-71-9	alpha-Chlordane	ND	ND	MG/KG		0/5	0.0017 - 0.0025	2.5E-03	N/A	1.6E+00 C*	6.8E-02	NCPSRG	NO	DLBSL
	12674-11-2	Aroclor-1016	ND	ND	MG/KG		0/5	0.017 - 0.024	2.4E-02	N/A	3.9E-01 N	N/A		NO	DLBSL
	11104-28-2	Aroclor-1221	ND	ND	MG/KG		0/5	0.017 - 0.024	2.4E-02	N/A	1.4E-01 C	N/A		NO	DLBSL
	11141-16-5	Aroclor-1232	ND	ND	MG/KG		0/5	0.017 - 0.024	2.4E-02	N/A	1.4E-01 C	N/A		NO	DLBSL
	53469-21-9	Aroclor-1242	ND	ND	MG/KG		0/5	0.017 - 0.024	2.4E-02	N/A	2.2E-01 C	N/A		NO	DLBSL
	12672-29-6	Aroclor-1248	ND	ND	MG/KG		0/5	0.017 - 0.024	2.4E-02	N/A	2.2E-01 C	N/A		NO	DLBSL
	11097-69-1	Aroclor-1254	ND	ND	MG/KG		0/5	0.017 - 0.024	2.4E-02	N/A	1.1E-01 C**	N/A		NO	DLBSL
	11096-82-5	Aroclor-1260	ND	ND	MG/KG		0/5	0.017 - 0.024	2.4E-02	N/A	2.2E-01 C	N/A		NO	DLBSL
	319-85-7	beta-BHC	ND	ND	MG/KG		0/5	0.0017 - 0.0025	2.5E-03	N/A	2.7E-01 C	1.2E-03	NCPSRG	NO	DLBSL
	319-86-8	delta-BHC	ND	ND	MG/KG		0/5	0.0017 - 0.0025	2.5E-03	N/A	2.7E-01 C	1.2E-03	NCPSRG	NO	DLBSL
	60-57-1	Dieldrin	ND	ND	MG/KG		0/5	0.0017 - 0.0025	2.5E-03	N/A	3.0E-02 C	8.1E-04	NCPSRG	NO	DLBSL
	959-98-8	Endosulfan I	ND	ND	MG/KG		0/5	0.0017 - 0.0025	2.5E-03	N/A	3.7E+01 N	5.6E+00	NCPSRG	NO	DLBSL
	33213-65-9	Endosulfan II	ND	ND	MG/KG		0/5	0.0017 - 0.0025	2.5E-03	N/A	3.7E+01 N	5.6E+00	NCPSRG	NO	DLBSL
	1031-07-8	Endosulfan sulfate	ND	ND	MG/KG		0/5	0.0017 - 0.0025	2.5E-03	N/A	3.7E+01 N	5.6E+00	NCPSRG	NO	DLBSL
	72-20-8	Endrin	ND	ND	MG/KG		0/5	0.0017 - 0.0025	2.5E-03	N/A	1.8E+00 N	8.1E-01	NCPSRG	NO	DLBSL
	7421-93-4	Endrin aldehyde	ND	ND	MG/KG		0/5	0.0017 - 0.0025	2.5E-03	N/A	1.8E+00 N	8.1E-01	NCPSRG	NO	DLBSL
	53494-70-5	Endrin ketone	ND	ND	MG/KG		0/5	0.0017 - 0.0025	2.5E-03	N/A	1.8E+00 N	8.1E-01	NCPSRG	NO	DLBSL
	58-89-9	gamma-BHC (Lindane)	ND	ND	MG/KG		0/5	0.0017 - 0.0025	2.5E-03	N/A	5.2E-01 C*	1.8E-03	NCPSRG	NO	DLBSL
	5103-74-2	gamma-Chlordane	ND	ND	MG/KG		0/5	0.0017 - 0.0025	2.5E-03	N/A	1.6E+00 C*	6.8E-02	NCPSRG	NO	DLBSL
	76-44-8	Heptachlor	ND	ND	MG/KG		0/5	0.0017 - 0.0025	2.5E-03	N/A	1.1E-01 C	6.6E-03	NCPSRG	NO	DLBSL
	1024-57-3	Heptachlor epoxide	ND	ND	MG/KG		0/5	0.0017 - 0.0025	2.5E-03	N/A	5.3E-02 C*	8.2E-04	NCPSRG	NO	DLBSL
	72-43-5	Methoxychlor	ND	ND	MG/KG		0/5	0.0017 - 0.0025	2.5E-03	N/A	3.1E+01 N	2.2E+01	NCPSRG	NO	DLBSL
	8001-35-2	Toxaphene	ND	ND	MG/KG		0/5	0.035 - 0.049	4.9E-02	N/A	4.4E-01 C	4.6E-02	NCPSRG	NO	DLBSL
	7429-90-5	Aluminum	5.2E+03	7.6E+03 J+	MG/KG	IR17-SS01-00-01-09C	5/5	73.7 - 107	7.6E+03	5.5E+03	7.7E+03 N	N/A		NO	BSL
	7440-36-0	Antimony	ND	ND	MG/KG		0/5	1.5 - 2.1	2.1E+00	4.5E-01	3.1E+00 N	N/A		NO	DLBSL
	7440-38-2	Arsenic	1.1E+00 J	4.9E+00	MG/KG	IR17-SS01-00-01-09C	5/5	1.5 - 2.1	4.9E+00	6.3E-01	3.9E-01 C*	5.8E+00	NCPSRG	YES	ASL
	7440-39-3	Barium	1.3E+01	2.1E+01	MG/KG	IR17-SS02-00-01-09C	5/5	3.7 - 5.4	2.1E+01	1.5E+01	1.5E+03 N	5.8E+02	NCPSRG	NO	BSL
	7440-41-7	Beryllium	1.4E-01 J	1.6E-01	MG/KG	IR17-SS02-00-01-09C	3/5	0.15 - 0.21	1.6E-01	1.0E-01	1.6E+01 N	N/A		NO	BSL
	7440-43-9	Cadmium	2.0E-02 J	2.0E-02 J	MG/KG	IR17-SS02-00-01-09C	1/5	0.44 - 0.64	2.0E-02	3.3E-02	7.0E+00 N	3.0E+00	NCPSRG	NO	BSL, BBK
	7440-70-2	Calcium	9.2E+01	3.7E+02	MG/KG	IR17-SS01D-00-01-09C	5/5	73.7 - 107	3.7E+02	6.4E+03	N/A	N/A		NO	NUT, BBK

Scenario Timeframe: Current/Future Medium: Surface Soil

Exposure Point	CAS Number	Chemical	Minimum [1] Concentration Qualifier	Maximum [1] Concentration Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration [2] Used for Screening	Background [3] Value	Screening [4] Toxicity Value		Potential ARAR/TBC Source		Rationale for [5] Contaminant Deletion or Selection
	7440-47-3	Chromium	2.7E+00	8.3E+00	MG/KG	IR17-SS01-00-01-09C	5/5	1.5 - 2.1	8.3E+00	6.1E+00	2.9E-01 C	3.8E+00	NCPSRG	YES	ASL
	7440-48-4	Cobalt	2.1E-01 J	3.3E-01 J	MG/KG	IR17-SS04-00-01-09C	4/5	0.37 - 0.54	3.3E-01	2.9E-01	2.3E+00 N	N/A		NO	BSL
	7440-50-8	Copper	7.0E-01 J	1.0E+00 J	MG/KG	IR17-SS01-00-01-09C	5/5	1.5 - 2.1	1.0E+00	4.8E+00	3.1E+02 N	7.0E+02	NCPSRG	NO	BSL, BBK
	7439-89-6	Iron	1.7E+03	7.6E+03	MG/KG	IR17-SS01-00-01-09C	5/5	11.1 - 16.1	7.6E+03	3.2E+03	5.5E+03 N	1.5E+02	NCPSRG	YES	ASL
	7439-92-1	Lead	7.5E+00	1.7E+01	MG/KG	IR17-SS01-00-01-09C	5/5	1.5 - 2.1	1.7E+01	1.2E+01	4.0E+02 NL	2.7E+02	NCPSRG	NO	BSL
	7439-95-4	Magnesium	1.3E+02	6.7E+02	MG/KG	IR17-SS01-00-01-09C	5/5	18.4 - 26.8	6.7E+02	2.4E+02	N/A	N/A		NO	NUT
	7439-96-5	Manganese	5.9E+00	1.1E+01	MG/KG	IR17-SS04-00-01-09C	5/5	0.37 - 0.54	1.1E+01	1.4E+01	1.8E+02 N	6.5E+01	NCPSRG	NO	BSL, BBK
	7439-97-6	Mercury	4.2E-02	5.2E-02	MG/KG	IR17-SS01-00-01-09C	2/5	0.032 - 0.045	5.2E-02	8.1E-02	2.3E+00 N	1.0E+00	NCPSRG	NO	BSL, BBK
	7440-02-0	Nickel	1.4E+00	2.0E+00	MG/KG	IR17-SS02-00-01-09C	5/5	0.74 - 1.1	2.0E+00	1.2E+00	1.6E+02 N	1.3E+02	NCPSRG	NO	BSL
	7440-09-7	Potassium	1.1E+02	5.0E+02	MG/KG	IR17-SS01-00-01-09C	5/5	73.7 - 107	5.0E+02	1.2E+02	N/A	N/A		NO	NUT
	7782-49-2	Selenium	6.9E-01 J	6.9E-01 J	MG/KG	IR17-SS01-00-01-09C	1/5	1.5 - 2.1	6.9E-01	5.6E-01	3.9E+01 N	2.1E+00	NCPSRG	NO	BSL
	7440-22-4	Silver	4.0E-01 J	4.0E-01 J	MG/KG	IR17-SS01-00-01-09C	1/5	1.5 - 2.1	4.0E-01	1.4E-01	3.9E+01 N	3.4E+00	NCPSRG	NO	BSL
	7440-23-5	Sodium	1.3E+01 J	1.9E+03	MG/KG	IR17-SS01D-00-01-09C	4/5	184 - 268	1.9E+03	8.1E+01	N/A	N/A		NO	NUT
	7440-28-0	Thallium	ND	ND	MG/KG		0/5	2.2 - 3.2	3.2E+00	3.6E-01	N/A	N/A		NO	NTX
	7440-62-2	Vanadium	5.8E+00	2.1E+01	MG/KG	IR17-SS01-00-01-09C	5/5	3.7 - 5.4	2.1E+01	8.9E+00	3.9E+01 N	N/A		NO	BSL
	7440-66-6	Zinc	4.3E+00	5.2E+00	MG/KG	SS05-00-01-09C	4/5	3.7 - 5.4	5.2E+00	1.1E+01	2.4E+03 N	1.2E+03	NCPSRG	NO	BSL, BBK

Table 2.7

OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN

Camp Johnson Site 17 MCB Camp Lejeune, North Carolina

Scenario Timeframe: Current/Future

Medium: Surface Soil

Exposure Medium: Surface Soil

Exposure	CAS	Chemical	Minimum [1]	Maximum [1]	Units	Location	Detection	Range of	Concentration [2]	Background [3]	Screening [4]	Potential	Potential	COPC	Rationale for [5]
Point	Number		Concentration	Concentration		of Maximum	Frequency	Detection	Used for	Value	Toxicity Value	ARAR/TBC	ARAR/TBC	Flag	Contaminant
			Qualifier	Qualifier		Concentration		Limits	Screening			Value	Source		Deletion
															or Selection

- [1] Minimum/Maximum detected concentrations.
- [2] Maximum concentration is used for screening. If the chemical was not detected, the maximum detection limit is used for screening.
- [3] Background values are two times the arithmetic mean basewide background surface soil concentrations.

 ${\it Background\ North\ Carolina\ }, \\ {\it Marine\ Corps\ Base\ Camp\ Lejeune,\ North\ Carolina\ }, \\ {\it Marine\ Corps\ Base\ Camp\ Lejeune,\ North\ Carolina\ }, \\ {\it Marine\ Corps\ Base\ Camp\ Lejeune,\ North\ Carolina\ }, \\ {\it Marine\ Corps\ Base\ Camp\ Lejeune,\ North\ Carolina\ }, \\ {\it Marine\ Corps\ Base\ Camp\ Lejeune,\ North\ Carolina\ }, \\ {\it Marine\ Corps\ Base\ Camp\ Lejeune,\ North\ Carolina\ }, \\ {\it Marine\ Corps\ Base\ Camp\ Lejeune,\ North\ Carolina\ }, \\ {\it Marine\ Corps\ Base\ Camp\ Lejeune,\ North\ Carolina\ }, \\ {\it Marine\ Corps\ Base\ Camp\ Lejeune,\ North\ Carolina\ }, \\ {\it Marine\ Corps\ Base\ Camp\ Lejeune,\ North\ Carolina\ }, \\ {\it Marine\ Corps\ Base\ Camp\ Lejeune,\ North\ Carolina\ }, \\ {\it Marine\ Corps\ Base\ Camp\ Lejeune,\ North\ Carolina\ }, \\ {\it Marine\ Corps\ Base\ Camp\ Lejeune,\ North\ Carolina\ }, \\ {\it Marine\ Corps\ Base\ Camp\ Lejeune,\ North\ Carolina\ }, \\ {\it Marine\ Corps\ Base\ Camp\ Lejeune,\ North\ Carolina\ }, \\ {\it Marine\ Corps\ Base\ Camp\ Lejeune,\ North\ Carolina\ }, \\ {\it Marine\ Corps\ Base\ Camp\ Lejeune,\ North\ Carolina\ }, \\ {\it Marine\ Corps\ Base\ Camp\ Lejeune,\ North\ Carolina\ }, \\ {\it Marine\ Corps\ Base\ Camp\ Lejeune,\ North\ Carolina\ }, \\ {\it Marine\ Corps\ Base\ Camp\ Lejeune,\ North\ Carolina\ }, \\ {\it Marine\ Corps\ Base\ Camp\ Lejeune,\ North\ Carolina\ }, \\ {\it Marine\ Corps\ Base\ Camp\ Lejeune,\ North\ Carolina\ }, \\ {\it Marine\ Corps\ Base\ Camp\ Lejeune,\ North\ Carolina\ }, \\ {\it Marine\ Corps\ Base\ Camp\ Lejeune,\ North\ Carolina\ }, \\ {\it Marine\ Corps\ Base\ Camp\ Lejeune,\ North\ Carolina\ }, \\ {\it Marine\ Corps\ Base\ Camp\ Lejeune,\ North\ Carolina\ }, \\ {\it Marine\ Corps\ Base\ Camp\ Lejeune,\ North\ Carolina\ }, \\ \\ {\it Marine\ Corps\ Base\ Camp\ Lejeune,\ North\ Carolina\ }, \\ \\ {\it Marine\ Corps\ Base\ Camp\ Lejeune,\ North\ Carolina\ }, \\ \\ {\it Marine\ Corps\ Base\ Camp\ Lejeune,\ North\ Carolina\ }, \\ \\ {\it Marine\ Corps\ Base\ Camp\ Lejeune,\ North\ Carolina\ }, \\ \\ {\it Marine\ Corps\ Base\ Camp\ Lejeune,\ North\ Carolina\ }, \\ \\ \\ {\it Marine$

Baker Environmental, April 25, 2001.

[4] Oak Ridge National Laboratory (ORNL). May 17, 2010. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites.

http://epa-prgs.ornl.gov/chemicals/index.shtml. Adjusted (noncarcinogenic RSLs adjusted by dividing by 10) residential soil RSLs.

RSL value for 1,4-Dichlorobenzene used as a surrogate for 1,3-Dichlorobenzene

RSL value for p-cresol used as surrogate for 3- and 4-methylphenol.

RSL value for methoxychlor used as surrogate for 4-chlorophenyl-phenylether.

RSL value for nitrobenzene used as surrogate for 4-nitrophenol.

RSL value for acenaphthene used as surrogate for acenaphthylene.

RSL value for pyrene used as surrogate for benzo(g,h,i)perylene.

RSL value for anthracene used as surrogate for phenanthrene.

RSL value for technical chlordane used as surrogate for alpha-chlordane.

RSL value for technical-HCH used as surrogate for delta-BHC.

RSL value for technical chlordane used as surrogate for gamma-chlordane.

RSL value for 1,3-dichloropropene used as a surrogate for cis-1,3-dichloropropene and trans-1,3-dichloropropene.

RSL value for endosulfan used as surrogate for endosulfan I, endosulfan II, and endosulfan sulfate.

RSL value for endrin used as surrogate for endrin aldehyde and endrin ketone.

RSL value for 2-chlorophenol used as surrogate for 4-chloro-3-methylphenol and 2-nitrophenol.

RSL value for Mercury (inorganic salts) used for mercury.

[5] Rationale Codes

Selection Reason: Above Screening Levels (ASL)

Detection Limit Above Screening Level (DLASL), not quantitatively evaluated in HHRA

Deletion Reason: No Toxicity Information (NTX)

Essential Nutrient (NUT)
Below Screening Level (BSL)
Below Background (BBK)

Detection Limit Below Screening Level (DLBSL)

COPC = Chemical of Potential Concern

ARAR/TBC = Applicable or Relevant and Appropriate Requirement/

To Be Considered

NCPSRG = North Carolina Preliminary Soil Remediation Goal, January, 2010

J = Estimated Value

J+ = Analyte present, value may be biased high, actual value may be lower

C = Carcinogenic

C* = N screening level < 100x C screening level, therefore

N screening value/10 used as screening level

C** = N screening level < 10x C screening level, therefore

N screening value/10 used as screening level

MG/KG = milligrams per kilogram

N = Noncarcinogenic

N/A = Not available/not applicable

NL = Noncarcinogenic lead residential soil RSL not adjusted by dividing by 10.

NS = Concentration exceeds Csat (soil saturation concentration),

Csat used as screening level.

TABLE 2.7a

Risk Ratio Screening for Surface Soil, Maximum Detected Concentration Camp Johnson Site 17 MCB Camp Lejeune, North Carolina

Analyte	Detection Frequency	Maximum Detected Concentration (Qualifier)	Sample Location of Maximum Detected Concentration	Residential Soil RSL	Acceptable Risk Level	Corresponding Hazard Index ^a	Corresponding Cancer Risk ^b	Target Organ
Metals (mg/kg)								
Arsenic	5 / 5	4.9E+00	IR17-SS01-00-01-09C	3.9E-01	1E-06	NA	1E-05	NA
Chromium	5 / 5	8.3E+00	IR17-SS01-00-01-09C	2.9E-01	1E-06	NA	3E-05	NA
Iron	5 / 5	7.6E+03	IR17-SS01-00-01-09C	5.5E+04	1	0.1	NA	Gastrointestinal
Cumulative Corresponding Hazard Index ^c						0.1		
Cumulative Corresponding Cancer Risk ^a							4E-05	
						Total	Gastrointestinal HI =	0.1

Constituents selected as COPCs are indicated by shading.

COPC = Constituent of Potential Concern HI = Hazard Index mg/kg = milligrams per kilogram NA = Not available/not applicable

^a Corresponding Hazard Index equals maximum detected concentration divided by the RSL divided by the acceptable risk level.

^b Corresponding Cancer Risk equals maximum detected concentration divided by the RSL divided by the acceptable risk level.

^c Cumulative Corresponding Hazard Index equals sum of Corresponding Hazard Indices for each constituent.

d Cumulative Corresponding Cancer Risk equals sum of Corresponding Cancer Risks for each constituent.

Constituent selected as COPC if it contributes to an overall Hazard Index by target organ greater than 0.5 or Cumulative Corresponding Cancer Risk greater than 5E-05, otherwise, constituent not selected as COPC.

Exposure Point	CAS Number	Chemical	Minimum [1] Concentration Qualifier	Maximum [1] Concentration Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration [2] Used for Screening	Background [3] Value	Screening [4] Toxicity Value	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for Contaminant Deletion or Selection
Site 17	71-55-6	1.1.1-Trichloroethane	ND	ND	MG/KG		0/9	0.0014 - 0.0065	6.5E-03	N/A	6.4E+02 NS	1.2E+00	NCPSRG	NO	DLBSL
One II	79-34-5	1.1.2.2-Tetrachloroethane	ND	ND	MG/KG		0/9	0.0014 - 0.0065	6.5E-03	N/A	5.6E-01 C	1.2E-03	NCPSRG	NO	DLBSL
	76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane(Freon-113)	ND	ND	MG/KG		0/9	0.0014 - 0.0065	6.5E-03	N/A	9.1E+02 NS		NCPSRG	NO	DLBSL
	79-00-5	1.1.2-Trichloroethane	ND	ND	MG/KG		0/9	0.0014 - 0.0065	6.5E-03	N/A	1.1E+00 C	N/A	NOI ONO	NO	DLBSL
	75-34-3	1.1-Dichloroethane	ND	ND	MG/KG		0/9	0.0014 - 0.0065	6.5E-03	N/A	3.3E+00 C	3.0E-02	NCPSRG	NO	DLBSL
	75-35-4	1.1-Dichloroethene	ND	ND	MG/KG		0/9	0.0014 - 0.0065	6.5E-03	N/A	2.4E+01 N	4.6E-02	NCPSRG	NO	DLBSL
	120-82-1	1,2,4-Trichlorobenzene	1.1E-03 J	1.1E-03 J	MG/KG	IR17-SB01-2-4-09C	1/9	0.0014 - 0.0065	6.5E-03	N/A	6.2E+00 C**	2.2E+00	NCPSRG	NO	BSL
	96-12-8	1,2-Dibromo-3-chloropropane	1.6E-03 J	1.6E-03 J	MG/KG	IR17-SB01-2-4-09C	1/9	0.0014 - 0.0065	6.5E-03	N/A	5.4E-03 C	2.5E-04	NCPSRG	YES	ASL
	106-93-4	1.2-Dibromoethane	ND	ND	MG/KG	II(17 OBO1 2 4 030	0/9	0.0014 - 0.0065	6.5E-03	N/A	3.4E-02 C	9.7E-05	NCPSRG	NO	DLBSL
	95-50-1	1.2-Dichlorobenzene	ND	ND	MG/KG		0/9	0.0014 - 0.0065	6.5E-03	N/A	1.9E+02 N	2.4E-01	NCPSRG	NO	DLBSL
	107-06-2	1.2-Dichloroethane	ND	ND	MG/KG		0/9	0.0014 - 0.0065	6.5E-03	N/A	4.3E-01 C	2.0E-03	NCPSRG	NO	DLBSL
	78-87-5	1,2-Dichloropropane	ND	ND	MG/KG		0/9	0.0014 - 0.0065	6.5E-03	N/A	9.0E-01 C*	3.3E-03	NCPSRG	NO	DLBSL
	541-73-1	1,3-Dichlorobenzene	ND	ND	MG/KG		0/9	0.0014 - 0.0065	6.5E-03	N/A	2.4E+00 C	N/A	1101 0110	NO	DLBSL
	106-46-7	1,4-Dichlorobenzene	ND	ND	MG/KG		0/9	0.0014 - 0.0065	6.5E-03	N/A	2.4E+00 C	7.0E-02	NCPSRG	NO	DLBSL
	78-93-3	2-Butanone	1.4E-03 J	2.3E-02 J	MG/KG	IR17-SS04-00-01-09C	6/10	0.0029 - 0.013	2.3E-02	N/A	2.8E+03 N	1.6E+01	NCPSRG	NO	BSL
	591-78-6	2-Hexanone	ND	ND	MG/KG	0001 00 01 000	0/9	0.0029 - 0.013	1.3E-02	N/A	2.1E+01 N	1.2E+00	NCPSRG	NO	DLBSL
	108-10-1	4-Methyl-2-pentanone	ND	ND	MG/KG		0/9	0.0029 - 0.013	1.3E-02	N/A	5.3E+02 N	N/A	1101 0110	NO	DLBSL
	67-64-1	Acetone	7.0E-02 J	9.0E-01 J	MG/KG	IR17-SS04-00-01-09C	6/10	0.0029 - 0.013	9.0E-01	N/A	6.1E+03 N	2.4E+01	NCPSRG	NO	BSL
	71-43-2	Benzene	ND	ND	MG/KG	0001 00 01 000	0/9	0.0014 - 0.0065	6.5E-03	N/A	1.1E+00 C*	7.3E-02	NCPSRG	NO	DLBSL
	75-27-4	Bromodichloromethane	ND	ND	MG/KG		0/9	0.0014 - 0.0065	6.5E-03	N/A	2.7E-01 C	2.9E-03	NCPSRG	NO	DLBSL
	75-25-2	Bromoform	ND	ND	MG/KG		0/9	0.0014 - 0.0065	6.5E-03	N/A	6.1E+01 C*	1.9E-02	NCPSRG	NO	DLBSL
	74-83-9	Bromomethane	ND	ND	MG/KG		0/8	0.0029 - 0.011	1.1E-02	N/A	7.3E-01 N	N/A		NO	DLBSL
	75-15-0	Carbon disulfide	ND	ND	MG/KG		0/9	0.0014 - 0.0065	6.5E-03	N/A	8.2E+01 N	3.8E+00	NCPSRG	NO	DLBSL
	56-23-5	Carbon tetrachloride	ND	ND	MG/KG		0/9	0.0014 - 0.0065	6.5E-03	N/A	6.1E-01 C	2.0E-03	NCPSRG	NO	DLBSL
	108-90-7	Chlorobenzene	ND	ND	MG/KG		0/9	0.0014 - 0.0065	6.5E-03	N/A	2.9E+01 N	4.5E-01	NCPSRG	NO	DLBSL
	75-00-3	Chloroethane	ND	ND	MG/KG		0/9	0.0029 - 0.013	1.3E-02	N/A	1.5E+03 N	1.6E+01	NCPSRG	NO	DLBSL
	67-66-3	Chloroform	2.3E-03	1.3E-02 J	MG/KG	IR17-SS02-00-01-09C	3/9	0.0014 - 0.0065	1.3E-02	N/A	2.9E-01 C	3.4E-01	NCPSRG	NO	BSL
	74-87-3	Chloromethane	6.5E-03 J	6.5E-03 J	MG/KG	IR17-SS01-00-01-09C	1/9	0.0029 - 0.013	6.5E-03	N/A	1.2E+01 N	1.5E-02	NCPSRG	NO	BSL
	156-59-2	cis-1,2-Dichloroethene	ND	ND	MG/KG		0/9	0.0014 - 0.0065	6.5E-03	N/A	7.8E+01 N	3.6E-01	NCPSRG	NO	DLBSL
	10061-01-5	cis-1,3-Dichloropropene	ND	ND	MG/KG		0/9	0.0014 - 0.0065	6.5E-03	N/A	1.7E+00 C*	2.3E-03	NCPSRG	NO	DLBSL
	110-82-7	Cyclohexane	ND	ND	MG/KG		0/9	0.0014 - 0.0065	6.5E-03	N/A	1.2E+02 NS	N/A		NO	DLBSL
	124-48-1	Dibromochloromethane	ND	ND	MG/KG		0/9	0.0014 - 0.0065	6.5E-03	N/A	6.8E-01 C	1.9E-03	NCPSRG	NO	DLBSL
	75-71-8	Dichlorodifluoromethane (Freon-12)	ND	ND	MG/KG		0/9	0.0014 - 0.0065	6.5E-03	N/A	1.8E+01 N	2.9E+01	NCPSRG	NO	DLBSL
	100-41-4	Ethylbenzene	ND	ND	MG/KG		0/9	0.0014 - 0.0065	6.5E-03	N/A	5.4E+00 C	8.1E+00	NCPSRG	NO	DLBSL
	98-82-8	Isopropylbenzene	ND	ND	MG/KG		0/9	0.0014 - 0.0065	6.5E-03	N/A	2.1E+02 N	1.3E+00	NCPSRG	NO	DLBSL
	79-20-9	Methyl acetate	1.3E-03 J	9.6E-02 J	MG/KG	IR17-SB03-2-7-09C	8/10	0.0014 - 0.0065	9.6E-02	N/A	7.8E+03 N	N/A		NO	BSL

Exposure Point	CAS Number	Chemical	Minimum [1] Concentration Qualifier	Maximum [1] Concentration Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration [2] Used for Screening	Background [3] Value	Screening [4] Toxicity Value	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for Contaminant Deletion or Selection
	108-87-2	Methylcyclohexane	ND	ND	MG/KG		0/9	0.0014 - 0.0065	6.5E-03	N/A	5.7E+01 N	N/A		NO	DLBSL
	75-09-2	Methylene chloride	1.5E-03 J	1.5E-03 J	MG/KG	IR17-SB03-2-7-09C	1/9	0.0029 - 0.013	1.5E-03	N/A	1.1E+01 C	2.3E-02	NCPSRG	NO	BSL
	1634-04-4	Methyl-tert-butyl ether (MTBE)	ND	ND	MG/KG		0/9	0.0014 - 0.0065	6.5E-03	N/A	4.3E+01 C	8.5E-02	NCPSRG	NO	DLBSL
	100-42-5	Styrene	ND	ND	MG/KG		0/9	0.0014 - 0.0065	6.5E-03	N/A	6.3E+02 N	9.2E-01	NCPSRG	NO	DLBSL
	127-18-4	Tetrachloroethene	ND	ND	MG/KG		0/9	0.0014 - 0.0065	6.5E-03	N/A	5.5E-01 C	5.0E-03	NCPSRG	NO	DLBSL
	108-88-3	Toluene	ND	ND	MG/KG		0/9	0.0014 - 0.0065	6.5E-03	N/A	5.0E+02 N	5.5E+00	NCPSRG	NO	DLBSL
	156-60-5	trans-1,2-Dichloroethene	ND	ND	MG/KG		0/9	0.0014 - 0.0065	6.5E-03	N/A	1.5E+01 N	5.1E-01	NCPSRG	NO	DLBSL
	10061-02-6	trans-1,3-Dichloropropene	ND	ND	MG/KG		0/9	0.0014 - 0.0065	6.5E-03	N/A	1.7E+00 C*	2.3E-03	NCPSRG	NO	DLBSL
	79-01-6	Trichloroethene	ND	ND	MG/KG		0/9	0.0014 - 0.0065	6.5E-03	N/A	2.8E+00 C	1.8E-02	NCPSRG	NO	DLBSL
	75-69-4	Trichlorofluoromethane(Freon-11)	ND	ND	MG/KG		0/9	0.0014 - 0.0065	6.5E-03	N/A	7.9E+01 N	2.4E+01	NCPSRG	NO	DLBSL
	75-01-4	Vinyl chloride	ND	ND	MG/KG		0/8	0.0029 - 0.013	1.3E-02	N/A	6.0E-02 C	1.9E-04	NCPSRG	NO	DLBSL
	1330-20-7	Xylene, total	ND	ND	MG/KG		0/9	0.0014 - 0.0065	6.5E-03	N/A	6.3E+01 N	6.0E+00	NCPSRG	NO	DLBSL
	92-52-4	1,1-Biphenyl	ND	ND	MG/KG		0/10	0.18 - 0.24	2.4E-01	N/A	2.1E+02 NS	4.3E+01	NCPSRG	NO	DLBSL
	108-60-1	2,2'-Oxybis(1-chloropropane)	ND	ND	MG/KG		0/10	0.18 - 0.24	2.4E-01	N/A	4.6E+00 C	N/A		NO	DLBSL
	95-95-4	2,4,5-Trichlorophenol	ND	ND	MG/KG		0/10	0.18 - 0.24	2.4E-01	N/A	6.1E+02 N	N/A		NO	DLBSL
	120-83-2	2,4-Dichlorophenol	ND	ND	MG/KG		0/10	0.18 - 0.24	2.4E-01	N/A	1.8E+01 N	N/A		NO	DLBSL
	105-67-9	2,4-Dimethylphenol	ND	ND	MG/KG		0/10	0.18 - 0.24	2.4E-01	N/A	1.2E+02 N	1.4E+00	NCPSRG	NO	DLBSL
	51-28-5	2,4-Dinitrophenol	ND	ND	MG/KG		0/10	0.18 - 0.24	2.4E-01	N/A	1.2E+01 N	N/A		NO	DLBSL
	121-14-2	2,4-Dinitrotoluene	ND	ND	MG/KG		0/10	0.18 - 0.24	2.4E-01	N/A	1.6E+00 C*	N/A		NO	DLBSL
	606-20-2	2,6-Dinitrotoluene	ND	ND	MG/KG		0/10	0.18 - 0.24	2.4E-01	N/A	6.1E+00 N	N/A		NO	DLBSL
	91-58-7	2-Chloronaphthalene	ND	ND	MG/KG		0/10	0.18 - 0.24	2.4E-01	N/A	1.8E+02 NS	N/A		NO	DLBSL
	95-57-8	2-Chlorophenol	ND	ND	MG/KG		0/10	0.18 - 0.24	2.4E-01	N/A	3.9E+01 N	4.1E-03	NCPSRG	NO	DLBSL
	91-57-6	2-Methylnaphthalene	ND	ND	MG/KG		0/10	0.18 - 0.24	2.4E-01	N/A	3.1E+01 N	1.6E+00	NCPSRG	NO	DLBSL
	95-48-7	2-Methylphenol	ND	ND	MG/KG		0/10	0.18 - 0.24	2.4E-01	N/A	3.1E+02 N	N/A		NO	DLBSL
	88-74-4	2-Nitroaniline	ND	ND	MG/KG		0/10	0.18 - 0.24	2.4E-01	N/A	6.1E+01 N	N/A		NO	DLBSL
	88-75-5	2-Nitrophenol	ND	ND	MG/KG		0/10	0.18 - 0.24	2.4E-01	N/A	3.9E+01 N	N/A		NO	DLBSL
	91-94-1	3,3'-Dichlorobenzidine	ND	ND	MG/KG		0/10	0.18 - 0.24	2.4E-01	N/A	1.1E+00 C	N/A		NO	DLBSL
	99-09-2	3-Nitroaniline	ND	ND	MG/KG		0/10	0.18 - 0.24	2.4E-01	N/A	6.1E+01 N	N/A		NO	DLBSL
	534-52-1	4,6-Dinitro-2-methylphenol	ND	ND	MG/KG		0/10	0.18 - 0.24	2.4E-01	N/A	4.9E-01 N	N/A		NO	DLBSL
	101-55-3	4-Bromophenyl-phenylether	ND	ND	MG/KG		0/10	0.18 - 0.24	2.4E-01	N/A	N/A	N/A		NO	NTX
	59-50-7	4-Chloro-3-methylphenol	ND	ND	MG/KG		0/10	0.18 - 0.24	2.4E-01	N/A	6.1E+02 N	N/A		NO	DLBSL
	106-47-8	4-Chloroaniline	ND	ND	MG/KG		0/10	0.18 - 0.24	2.4E-01	N/A	2.4E+00 C	N/A		NO	DLBSL
	7005-72-3	4-Chlorophenyl-phenylether	ND	ND	MG/KG		0/10	0.18 - 0.24	2.4E-01	N/A	3.1E+01 N	N/A		NO	DLBSL
	106-44-5	4-Methylphenol	ND	ND	MG/KG		0/10	0.18 - 0.24	2.4E-01	N/A	3.1E+01 N	4.0E-01	NCPSRG	NO	DLBSL
	100-01-6	4-Nitroaniline	ND	ND	MG/KG		0/10	0.18 - 0.24	2.4E-01	N/A	2.4E+01 C*	N/A		NO	DLBSL
	100-02-7	4-Nitrophenol	ND	ND	MG/KG		0/10	0.18 - 0.24	2.4E-01	N/A	4.8E+00 C*	N/A		NO	DLBSL
	83-32-9	Acenaphthene	ND	ND	MG/KG		0/10	0.18 - 0.24	2.4E-01	N/A	3.4E+02 N	8.4E+00	NCPSRG	NO	DLBSL

Exposure Point	CAS Number	Chemical	Minimum [1] Concentration Qualifier	Maximum [1] Concentration Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration [2] Used for Screening	Background [3] Value	Screening [4] Toxicity Value	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for [5 Contaminant Deletion or Selection
	208-96-8	Acenaphthylene	ND	ND	MG/KG		0/10	0.18 - 0.24	2.4E-01	N/A	3.4E+02 N	1.1E+01	NCPSRG	NO	DLBSL
	98-86-2	Acetophenone	ND	ND	MG/KG		0/10	0.18 - 0.24	2.4E-01	N/A	7.8E+02 N	N/A		NO	DLBSL
	120-12-7	Anthracene	ND	ND	MG/KG		0/10	0.18 - 0.24	2.4E-01	N/A	1.7E+03 N	6.6E+02	NCPSRG	NO	DLBSL
	1912-24-9	Atrazine	ND	ND	MG/KG		0/10	0.18 - 0.24	2.4E-01	N/A	2.1E+00 C	2.5E-02	NCPSRG	NO	DLBSL
	100-52-7	Benzaldehyde	ND	ND	MG/KG		0/5	0.18 - 0.24	2.4E-01	N/A	7.8E+02 N	N/A		NO	DLBSL
	56-55-3	Benzo(a)anthracene	ND	ND	MG/KG		0/10	0.035 - 0.049	4.9E-02	N/A	1.5E-01 C	1.8E-01	NCPSRG	NO	DLBSL
	50-32-8	Benzo(a)pyrene	ND	ND	MG/KG		0/10	0.035 - 0.049	4.9E-02	N/A	1.5E-02 C	5.9E-02	NCPSRG	YES	DLASL
	205-99-2	Benzo(b)fluoranthene	ND	ND	MG/KG		0/10	0.035 - 0.049	4.9E-02	N/A	1.5E-01 C	6.0E-01	NCPSRG	NO	DLBSL
	191-24-2	Benzo(g,h,i)perylene	ND	ND	MG/KG		0/10	0.18 - 0.24	2.4E-01	N/A	1.7E+02 N	3.6E+02	NCPSRG	NO	DLBSL
	207-08-9	Benzo(k)fluoranthene	ND	ND	MG/KG		0/10	0.18 - 0.24	2.4E-01	N/A	1.5E+00 C	5.9E+00	NCPSRG	NO	DLBSL
	111-91-1	bis(2-Chloroethoxy)methane	ND	ND	MG/KG		0/10	0.18 - 0.24	2.4E-01	N/A	1.8E+01 N	N/A		NO	DLBSL
	111-44-4	bis(2-Chloroethyl)ether	ND	ND	MG/KG		0/10	0.18 - 0.24	2.4E-01	N/A	2.1E-01 C	1.4E-04	NCPSRG	YES	DLASL
	117-81-7	bis(2-Ethylhexyl)phthalate	9.6E-02 J	9.6E-02 J	MG/KG	IR17-SS01-00-01-09C	1/10	0.18 - 0.24	9.6E-02	N/A	3.5E+01 C*	7.2E+00	NCPSRG	NO	BSL
	85-68-7	Butylbenzylphthalate	ND	ND	MG/KG		0/10	0.18 - 0.24	2.4E-01	N/A	2.6E+02 C*	1.5E+02	NCPSRG	NO	DLBSL
	105-60-2	Caprolactam	ND	ND	MG/KG		0/10	0.18 - 0.24	2.4E-01	N/A	3.1E+03 N	1.8E+01	NCPSRG	NO	DLBSL
	86-74-8	Carbazole	ND	ND	MG/KG		0/10	0.18 - 0.24	2.4E-01	N/A	N/A	N/A		NO	NTX
	218-01-9	Chrysene	ND	ND	MG/KG		0/10	0.18 - 0.24	2.4E-01	N/A	1.5E+01 C	1.8E+01	NCPSRG	NO	DLBSL
	53-70-3	Dibenz(a,h)anthracene	ND	ND	MG/KG		0/10	0.035 - 0.049	4.9E-02	N/A	1.5E-02 C	1.9E-01	NCPSRG	YES	DLASL
	132-64-9	Dibenzofuran	ND	ND	MG/KG		0/10	0.18 - 0.24	2.4E-01	N/A	7.8E+00 N	4.7E+00	NCPSRG	NO	DLBSL
	84-66-2	Diethylphthalate	ND	ND	MG/KG		0/10	0.18 - 0.24	2.4E-01	N/A	4.9E+03 N	3.7E+01	NCPSRG	NO	DLBSL
	131-11-3	Dimethyl phthalate	ND	ND	MG/KG		0/10	0.18 - 0.24	2.4E-01	N/A	N/A	N/A		NO	NTX
	84-74-2	Di-n-butylphthalate	9.3E-02 J	9.3E-02 J	MG/KG	IR17-SS01-00-01-09C	1/10	0.18 - 0.24	9.3E-02	N/A	6.1E+02 N	1.9E+01	NCPSRG	NO	BSL
	117-84-0	Di-n-octylphthalate	ND	ND	MG/KG		0/10	0.18 - 0.24	2.4E-01	N/A	3.5E+01 C*	3.8E+01	NCPSRG	NO	DLBSL
	206-44-0	Fluoranthene	ND	ND	MG/KG		0/10	0.18 - 0.24	2.4E-01	N/A	2.3E+02 N	3.3E+02	NCPSRG	NO	DLBSL
	86-73-7	Fluorene	ND	ND	MG/KG		0/10	0.18 - 0.24	2.4E-01	N/A	2.3E+02 N	5.6E+01	NCPSRG	NO	DLBSL
	118-74-1	Hexachlorobenzene	ND	ND	MG/KG		0/10	0.18 - 0.24	2.4E-01	N/A	3.0E-01 C	2.6E-03	NCPSRG	NO	DLBSL
	87-68-3	Hexachlorobutadiene	ND	ND	MG/KG		0/10	0.18 - 0.24	2.4E-01	N/A	6.1E+00 C**	8.7E-03	NCPSRG	NO	DLBSL
	77-47-4	Hexachlorocyclopentadiene	ND	ND	MG/KG		0/10	0.18 - 0.24	2.4E-01	N/A	3.7E+01 N	N/A		NO	DLBSL
	67-72-1	Hexachloroethane	ND	ND	MG/KG		0/10	0.18 - 0.24	2.4E-01	N/A	6.1E+00 C**	N/A		NO	DLBSL
	193-39-5	Indeno(1,2,3-cd)pyrene	ND	ND	MG/KG		0/10	0.035 - 0.049	4.9E-02	N/A	1.5E-01 C	2.0E+00	NCPSRG	NO	DLBSL
	78-59-1	Isophorone	ND	ND	MG/KG		0/10	0.035 - 0.049	4.9E-02	N/A	5.1E+02 C*	2.0E-01	NCPSRG	NO	DLBSL
	91-20-3	Naphthalene	ND	ND	MG/KG		0/10	0.18 - 0.24	2.4E-01	N/A	3.6E+00 C*	2.1E-01	NCPSRG	NO	DLBSL
	621-64-7	n-Nitroso-di-n-propylamine	ND	ND	MG/KG		0/10	0.035 - 0.049	4.9E-02	N/A	6.9E-02 C	N/A		NO	DLBSL
	86-30-6	n-Nitrosodiphenylamine	ND	ND	MG/KG		0/10	0.18 - 0.24	2.4E-01	N/A	9.9E+01 C	N/A		NO	DLBSL
	98-95-3	Nitrobenzene	ND	ND	MG/KG		0/10	0.18 - 0.24	2.4E-01	N/A	4.8E+00 C*	N/A		NO	DLBSL
	87-86-5	Pentachlorophenol	ND	ND	MG/KG		0/10	0.18 - 0.24	2.4E-01	N/A	3.0E+00 C	3.1E-02	NCPSRG	NO	DLBSL
	85-01-8	Phenanthrene	ND	ND	MG/KG		0/10	0.18 - 0.24	2.4E-01	N/A	1.7E+03 N	5.7E+01	NCPSRG	NO	DLBSL

Exposure Point	CAS Number	Chemical	Minimum [1] Concentration Qualifier	Maximum [1] Concentration Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration [2] Used for Screening	Background [3] Value	Screening [4] Toxicity Value	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for [5] Contaminant Deletion or Selection
	108-95-2	Phenol	ND	ND	MG/KG		0/10	0.18 - 0.24	2.4E-01	N/A	1.8E+03 N	2.3E-01	NCPSRG	NO	DLBSL
	129-00-0	Pyrene	ND	ND	MG/KG		0/10	0.18 - 0.24	2.4E-01	N/A	1.7E+02 N	2.2E+02	NCPSRG	NO	DLBSL
	72-54-8	4,4'-DDD	ND	ND	MG/KG		0/10	0.0017 - 0.0025	2.5E-03	N/A	2.0E+00 C	2.4E-01	NCPSRG	NO	DLBSL
	72-55-9	4,4'-DDE	4.1E-04 J	2.2E-03 J	MG/KG	IR17-SS05-00-01-09C	5/10	0.0017 - 0.0025	2.2E-03	N/A	1.4E+00 C	N/A		NO	BSL
	50-29-3	4,4'-DDT	9.0E-04 J	1.9E-03 J	MG/KG	IR17-SS02-00-01-09C	3/10	0.0017 - 0.0025	1.9E-03	N/A	1.7E+00 C*	3.4E-01	NCPSRG	NO	BSL
	309-00-2	Aldrin	ND	ND	MG/KG		0/10	0.0017 - 0.0025	2.5E-03	N/A	2.9E-02 C*	N/A		NO	DLBSL
	319-84-6	alpha-BHC	ND	ND	MG/KG		0/10	0.0017 - 0.0025	2.5E-03	N/A	7.7E-02 C	1.2E-03	NCPSRG	NO	DLBSL
	5103-71-9	alpha-Chlordane	ND	ND	MG/KG		0/10	0.0017 - 0.0025	2.5E-03	N/A	1.6E+00 C*	6.8E-02	NCPSRG	NO	DLBSL
	12674-11-2	Aroclor-1016	ND	ND	MG/KG		0/10	0.017 - 0.024	2.4E-02	N/A	3.9E-01 N	N/A		NO	DLBSL
	11104-28-2	Aroclor-1221	ND	ND	MG/KG		0/10	0.017 - 0.024	2.4E-02	N/A	1.4E-01 C	N/A		NO	DLBSL
	11141-16-5	Aroclor-1232	ND	ND	MG/KG		0/10	0.017 - 0.024	2.4E-02	N/A	1.4E-01 C	N/A		NO	DLBSL
	53469-21-9	Aroclor-1242	ND	ND	MG/KG		0/10	0.017 - 0.024	2.4E-02	N/A	2.2E-01 C	N/A		NO	DLBSL
	12672-29-6	Aroclor-1248	ND	ND	MG/KG		0/10	0.017 - 0.024	2.4E-02	N/A	2.2E-01 C	N/A		NO	DLBSL
	11097-69-1	Aroclor-1254	ND	ND	MG/KG		0/10	0.017 - 0.024	2.4E-02	N/A	1.1E-01 C**	N/A		NO	DLBSL
	11096-82-5	Aroclor-1260	ND	ND	MG/KG		0/10	0.017 - 0.024	2.4E-02	N/A	2.2E-01 C	N/A		NO	DLBSL
	319-85-7	beta-BHC	ND	ND	MG/KG		0/10	0.0017 - 0.0025	2.5E-03	N/A	2.7E-01 C	1.2E-03	NCPSRG	NO	DLBSL
	319-86-8	delta-BHC	ND	ND	MG/KG		0/10	0.0017 - 0.0025	2.5E-03	N/A	2.7E-01 C	1.2E-03	NCPSRG	NO	DLBSL
	60-57-1	Dieldrin	ND	ND	MG/KG		0/10	0.0017 - 0.0025	2.5E-03	N/A	3.0E-02 C	8.1E-04	NCPSRG	NO	DLBSL
	959-98-8	Endosulfan I	ND	ND	MG/KG		0/10	0.0017 - 0.0025	2.5E-03	N/A	3.7E+01 N	5.6E+00	NCPSRG	NO	DLBSL
	33213-65-9	Endosulfan II	ND	ND	MG/KG		0/10	0.0017 - 0.0025	2.5E-03	N/A	3.7E+01 N	5.6E+00	NCPSRG	NO	DLBSL
	1031-07-8	Endosulfan sulfate	ND	ND	MG/KG		0/10	0.0017 - 0.0025	2.5E-03	N/A	3.7E+01 N	5.6E+00	NCPSRG	NO	DLBSL
	72-20-8	Endrin	ND	ND	MG/KG		0/10	0.0017 - 0.0025	2.5E-03	N/A	1.8E+00 N	8.1E-01	NCPSRG	NO	DLBSL
	7421-93-4	Endrin aldehyde	ND	ND	MG/KG		0/10	0.0017 - 0.0025	2.5E-03	N/A	1.8E+00 N	8.1E-01	NCPSRG	NO	DLBSL
	53494-70-5	Endrin ketone	ND	ND	MG/KG		0/10	0.0017 - 0.0025	2.5E-03	N/A	1.8E+00 N	8.1E-01	NCPSRG	NO	DLBSL
	58-89-9	gamma-BHC (Lindane)	ND	ND	MG/KG		0/10	0.0017 - 0.0025	2.5E-03	N/A	5.2E-01 C*	1.8E-03	NCPSRG	NO	DLBSL
	5103-74-2	gamma-Chlordane	ND	ND	MG/KG		0/10	0.0017 - 0.0025	2.5E-03	N/A	1.6E+00 C*	6.8E-02	NCPSRG	NO	DLBSL
	76-44-8	Heptachlor	ND	ND	MG/KG		0/10	0.0017 - 0.0025	2.5E-03	N/A	1.1E-01 C	6.6E-03	NCPSRG	NO	DLBSL
	1024-57-3	Heptachlor epoxide	ND	ND	MG/KG		0/10	0.0017 - 0.0025	2.5E-03	N/A	5.3E-02 C*	8.2E-04	NCPSRG	NO	DLBSL
	72-43-5	Methoxychlor	ND	ND	MG/KG		0/10	0.0017 - 0.0025	2.5E-03	N/A	3.1E+01 N	2.2E+01	NCPSRG	NO	DLBSL
	8001-35-2	Toxaphene	ND	ND	MG/KG		0/10	0.033 - 0.049	4.9E-02	N/A	4.4E-01 C	4.6E-02	NCPSRG	NO	DLBSL
	7429-90-5	Aluminum	4.5E+03	2.0E+04	MG/KG	IR17-SB03-2-7-09C	10/10	73.7 - 107	2.0E+04	5.5E+03	7.7E+03 N	N/A		YES	ASL
	7440-36-0	Antimony	9.3E-01 J	9.3E-01 J	MG/KG	IR17-SB01-2-4-09C	1/10	1.5 - 2.1	9.3E-01	3.6E-01	3.1E+00 N	N/A		NO	BSL
	7440-38-2	Arsenic	9.5E-01 J	1.5E+01	MG/KG	IR17-SB03D-2-7-09C	10/10	1.5 - 2.1	1.5E+01	6.3E-01	3.9E-01 C*	5.8E+00	NCPSRG	YES	ASL
	7440-39-3	Barium	6.6E+00	2.2E+01	MG/KG	IR17-SB03-2-7-09C	10/10	3.7 - 5.4	2.2E+01	1.5E+01	1.5E+03 N	5.8E+02	NCPSRG	NO	BSL
	7440-41-7	Beryllium	5.5E-02 J	3.1E-01	MG/KG	IR17-SB03-2-7-09C	8/10	0.15 - 0.21	3.1E-01	1.0E-01	1.6E+01 N	N/A		NO	BSL
	7440-43-9	Cadmium	2.0E-02 J	2.0E-02 J	MG/KG	IR17-SS02-00-01-09C	1/10	0.44 - 0.64	2.0E-02	2.3E-02	7.0E+00 N	3.0E+00	NCPSRG	NO	BSL, BBK
	7440-70-2	Calcium	9.2E+01	3.7E+02	MG/KG	IR17-SS01D-00-01-09C	7/10	73.7 - 107	3.7E+02	4.4E+02	N/A	N/A	l	NO	NUT, BBK

${\sf Table} \ 2.8$ OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN

Camp Johnson Site 17 MCB Camp Lejeune, North Carolina

Exposure Point	CAS Number	Chemical	Minimum [1] Concentration Qualifier	Maximum [1] Concentration Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration [2] Used for Screening	Background [3] Value	Screening [4] Toxicity Value	Potential ARAR/TBC Value			Rationale for [5] Contaminant Deletion or Selection
	7440-47-3	Chromium	2.7E+00	3.6E+01	MG/KG	IR17-SB03-2-7-09C	10/10	1.5 - 2.1	3.6E+01	6.1E+00	2.9E-01 C	3.8E+00	NCPSRG	YES	ASL
	7440-48-4	Cobalt	2.1E-01 J	1.1E+00	MG/KG	IR17-SB03-2-7-09C	9/10	0.37 - 0.54	1.1E+00	2.9E-01	2.3E+00 N	N/A		NO	BSL
	7440-50-8	Copper	6.6E-01 J	5.0E+00	MG/KG	IR17-SB03-2-7-09C	10/10	1.5 - 2.1	5.0E+00	2.6E+00	3.1E+02 N	7.0E+02	NCPSRG	NO	BSL
	7439-89-6	Iron	1.7E+03	2.8E+04	MG/KG	IR17-SB03D-2-7-09C	10/10	11.1 - 16.1	2.8E+04	3.2E+03	5.5E+03 N	1.5E+02	NCPSRG	YES	ASL
	7439-92-1	Lead	3.3E+00	1.7E+01	MG/KG	IR17-SS01-00-01-09C	10/10	1.5 - 2.1	1.7E+01	8.5E+00	4.0E+02 NL	2.7E+02	NCPSRG	NO	BSL
	7439-95-4	Magnesium	1.3E+02	1.0E+03	MG/KG	IR17-SB03-2-7-09C	10/10	18.4 - 26.8	1.0E+03	2.4E+02	N/A	N/A		NO	NUT
	7439-96-5	Manganese	5.4E+00	1.3E+01	MG/KG	IR17-SB03D-2-7-09C	10/10	0.37 - 0.54	1.3E+01	9.3E+00	1.8E+02 N	6.5E+01	NCPSRG	NO	BSL
	7439-97-6	Mercury	4.2E-02	5.2E-02	MG/KG	IR17-SS01-00-01-09C	3/10	0.032 - 0.045	5.2E-02	7.1E-02	2.3E+00 N	1.0E+00	NCPSRG	NO	BSL, BBK
	7440-02-0	Nickel	1.2E+00	2.7E+00	MG/KG	IR17-SB03-2-7-09C	10/10	0.74 - 1.1	2.7E+00	1.2E+00	1.5E+02 N	1.3E+02	NCPSRG	NO	BSL
	7440-09-7	Potassium	1.1E+02	1.1E+03	MG/KG	IR17-SB03-2-7-09C	10/10	73.7 - 107	1.1E+03	1.2E+02	N/A	N/A		NO	NUT
	7782-49-2	Selenium	6.9E-01 J	1.4E+00 J	MG/KG	IR17-SB03D-2-7-09C	2/10	1.5 - 2.1	1.4E+00	5.1E-01	3.9E+01 N	2.1E+00	NCPSRG	NO	BSL
	7440-22-4	Silver	4.0E-01 J	4.0E-01 J	MG/KG	IR17-SS01-00-01-09C	1/10	1.5 - 2.1	4.0E-01	1.3E-01	3.9E+01 N	3.4E+00	NCPSRG	NO	BSL
	7440-23-5	Sodium	5.3E+00 J	1.9E+03	MG/KG	IR17-SS01D-00-01-09C	9/10	184 - 268	1.9E+03	6.8E+01	N/A	N/A		NO	NUT
	7440-28-0	Thallium	ND	ND	MG/KG		0/10	2.2 - 3.2	3.2E+00	3.6E-01	N/A	N/A		NO	NTX
	7440-62-2	Vanadium	5.8E+00	7.0E+01	MG/KG	IR17-SB03D-2-7-09C	10/10	3.7 - 5.4	7.0E+01	8.9E+00	3.9E+01 N	N/A		YES	ASL
	7440-66-6	Zinc	2.4E+00 J	8.9E+00	MG/KG	IR17-SB03-2-7-09C	9/10	3.7 - 5.4	8.9E+00	6.6E+00	2.4E+03 N	1.2E+03	NCPSRG	NO	BSL

Table 2.8

OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN

Camp Johnson Site 17
MCB Camp Lejeune, North Carolina

Scenario Timeframe: Future Medium: Surface and Subsurface Soil

Exposure Medium: Surface and Subsurface Soil

Exposure	CAS	Chemical	Minimum [1]	Maximum [1]	Units	Location	Detection	Range of	Concentration [2]	Background [3]	Screening [4]	Potential	Potential	COPC	Rationale for [5]
Point	Number		Concentration	Concentration		of Maximum	Frequency	Detection	Used for	Value	Toxicity Value	ARAR/TBC	ARAR/TBC	Flag	Contaminant
			Qualifier	Qualifier		Concentration		Limits	Screening			Value	Source		Deletion
															or Selection

- [1] Minimum/Maximum detected concentrations.
- [2] Maximum concentration is used for screening. If the chemical was not detected, the maximum detection limit is used for screening.
- [3] Background values are lower of two times the arithmetic mean basewide background surface soil or subsurface soil concentrations.

 ${\it Background\ Soil\ Study\ Report,\ Marine\ Corps\ Base\ Camp\ Lejeune,\ North\ Carolina\ ,}$

Baker Environmental, April 25, 2001.

[4] Oak Ridge National Laboratory (ORNL). May 17, 2010. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites.

http://epa-prgs.ornl.gov/chemicals/index.shtml. Adjusted (noncarcinogenic RSLs adjusted by dividing by 10) residential soil RSLs.

RSL value for n-Hexane used as surrogate for Methylcyclohexane.

RSL value for 2-Nitroaniline used as surrogate for 3-Nitroaniline.

RSL value for 1,4-Dichlorobenzene used as a surrogate for 1,3-Dichlorobenzene

RSL value for p-cresol used as surrogate for 3- and 4-methylphenol.

RSL value for methoxychlor used as surrogate for 4-chlorophenyl-phenylether.

RSL value for nitrobenzene used as surrogate for 4-nitrophenol.

RSL value for acenaphthene used as surrogate for acenaphthylene.

RSL value for pyrene used as surrogate for benzo(q,h,i)perylene.

RSL value for anthracene used as surrogate for phenanthrene.

RSL value for technical chlordane used as surrogate for alpha-chlordane.

RSL value for technical-HCH used as surrogate for delta-BHC.

RSL value for technical chlordane used as surrogate for gamma-chlordane.

RSL value for 1,3-dichloropropene used as a surrogate for cis-1,3-dichloropropene and trans-1,3-dichloropropene.

RSL value for endosulfan used as surrogate for endosulfan I, endosulfan II, and endosulfan sulfate.

RSL value for endrin used as surrogate for endrin aldehyde and endrin ketone.

RSL value for 2-chlorophenol used as surrogate for 4-chloro-3-methylphenol and 2-nitrophenol.

RSL value for Mercury (inorganic salts) used for mercury.

[5] Rationale Codes

Selection Reason: Above Screening Levels (ASL)

Detection Limit Above Screening Level (DLASL), not quantitatively evaluated in HHRA

Deletion Reason:

No Toxicity Information (NTX) Essential Nutrient (NUT) Below Screening Level (BSL) Below Background (BBK)

Detection Limit Below Screening Level (DLBSL)

COPC = Chemical of Potential Concern

ARAR/TBC = Applicable or Relevant and Appropriate Requirement/

To Be Considered

NCPSRG = North Carolina Preliminary Soil Remediation Goal, January, 2010

- J = Estimated Value
- C = Carcinogenic
- C* = N screening level < 100x C screening level, therefore

N screening value/10 used as screening level

C** = N screening level < 10x C screening level, therefore

N screening value/10 used as screening level

MG/KG = Milligrams per kilogram

N = Noncarcinogenic

N/A = Not available/not applicable

NL = Noncarcinogenic lead residential soil RSL not adjusted by dividing by 10.

NS = Concentration exceeds Csat (soil saturation concentration),

Csat used as screening level.

TABLE 2.8a

Risk Ratio Screening for Surface and Subsurface Soil, Maximum Detected Concentration Camp Johnson Site 17 MCB Camp Lejeune, North Carolina

Analyte	Detection Frequency	Maximum Detected Concentration (Qualifier)	Sample Location of Maximum Detected Concentration	Residential Soil RSL	Acceptable Risk Level	Corresponding Hazard Index ^a	Corresponding Cancer Risk ^b	Target Organ
Metals (mg/kg)								
Aluminum	10 / 10	2.0E+04	IR17-SB03-2-7-09C	7.7E+04	1	0.3	NA	Neurological, Developmental
Arsenic	10 / 10	1.5E+01	IR17-SB03D-2-7-09C	3.9E-01	1E-06	NA	4E-05	NA .
Chromium	10 / 10	3.6E+01	IR17-SB03-2-7-09C	2.9E-01	1E-06	NA	1E-04	NA
Iron	10 / 10	2.8E+04	IR17-SB03D-2-7-09C	5.5E+04	1	0.5	NA	Gastrointestinal
Vanadium	10 / 10	7.0E+01	IR17-SB03D-2-7-09C	3.9E+02	1	0.2	NA	Hair
Cumulative Corresponding Hazard Index ^c						1.0		
Cumulative Corresponding Cancer Risk ^a							2E-04	
	-	•		-	-	Tota	Developmental HI =	0.3
						Total	Gastrointestinal HI =	0.5
Notes:							Total Hair HI =	0.2

^a Corresponding Hazard Index equals maximum detected concentration divided by the RSL divided by the acceptable risk level

Constituent selected as COPC if it contributes to an overall Hazard Index by target organ greater than 0.5 or Cumulative Corresponding Cancer Risk greater than 5E-05, otherwise, constituent not selected as COPC.

Constituents selected as COPCs are indicated by shading.

COPC = Chemical of Potential Concern HI = Hazard Index mg/kg = milligrams per kilogram NA = Not available/not applicable Total Neurological HI =

0.3

^b Corresponding Cancer Risk equals maximum detected concentration divided by the RSL divided by the acceptable risk level.

^c Cumulative Corresponding Hazard Index equals sum of Corresponding Hazard Indices for each constituent.

^d Cumulative Corresponding Cancer Risk equals sum of Corresponding Cancer Risks for each constituent.

TABLE 2.8b

Risk Ratio Screening for Surface and Subsurface Soil, 95% UCL Concentration Camp Johnson Site 17 MCB Camp Lejeune, North Carolina

Analyte	Detection Frequency	95% UCL	95% UCL Rationale	Residential Soil RSL	Acceptable Risk Level	Corresponding Hazard Index ^a	Corresponding Cancer Risk ^b	Target Organ
Metals (mg/kg)								
Arsenic	10 / 10	7.0E+00 1, 3	95% App-G	3.9E-01	1E-06	NA	2E-05	NA
Chromium	10 / 10	2.3E+01 1	95% H-UCL	2.9E-01	1E-06	NA	8E-05	NA
Cumulative Corresponding Hazard Index ^c					·	NA		
Cumulative Corresponding Cancer Risk ^a							1E-04	

Notes:

Constituent selected as COPC if it contributes to an overall Hazard Index by target organ greater than 0.5 or Cumulative Corresponding Cancer Risk greater than 5E-05, otherwise, constituent not selected as COPC.

Constituents selected as COPCs are indicated by shading.

COPC = Chemical of Potential Concern mg/kg = milligrams per kilogram HI = Hazard Index NA = Not available/not applicable.

ProUCL, Version 4.00.05 used to determine distribution of data and calculate 95% UCL, following recommendations in users guide (USEPA. May 2010. ProUCL, Version 4.0. Prepared by Lockheed Martin Environmental Services).

Options: 95% Approximate Gamma UCL (95% App-G); 95% H UCL (95% H)

Upper Confidence Limit (UCL) Rationale:

- (1) Shapiro-Wilk W Test/Lilliefors test indicates data are log-normally distributed.
- (2) Shapiro-Wilk W Test/Lilliefors indicates data are normally distributed.
- (3) Test indicates data are gamma distributed.
- (4) Distribution tests are inconclusive
- (5) Max value used because 95% UCL greater than max.
- (6) Only detected in one sample, detected concentration used.

^a Corresponding Hazard Index equals 95% UCL concentration divided by the RSL divided by the acceptable risk level.

^b Corresponding Cancer Risk equals 95% UCL concentration divided by the RSL divided by the acceptable risk level

^c Cumulative Corresponding Hazard Index equals sum of Corresponding Hazard Indices for each constituent.

^d Cumulative Corresponding Cancer Risk equals sum of Corresponding Cancer Risks for each constituent.

Table 2.9

OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN

Camp Johnson Site 17 MCB Camp Lejeune, North Carolina

Scenario Timeframe: Future
Medium: Subsurface Soil
Exposure Medium: Subsurface Soil

Exposure Point	CAS Number	Chemical	Minimum [1] Concentration Qualifier	Maximum [1] Concentration Qualifier	Units	Detection Frequency	Range of Detection Limits	Concentration [2] Used for Screening		Screening [4] Toxicity Value		Flag	Rationale for [5] Contaminant Deletion or Selection
Site 17		Chromium (III) Chromium (VI)	2.0E+01 J 1.2E+00		MG/KG MG/KG	4/5 5/5	0.24 - 0.31 0.67 - 0.74	3.7E+01 1.9E+00	N/A N/A	1.2E+04 N 2.9E-01 C	 NCPSRG NCPSRG		BSL ASL

[1] Minimum/Maximum detected concentrations.

[2] Maximum concentration is used for screening. If the chemical was not detected, the maximum detection limit is used for screening. Chromium III not analyzed for in subsurface soil samples. Concentration of chromium III assumed to be the difference between the reported hexavalent chromium concentration and reported total chromium concentration.

[3] Background values are lower of two times the arithmetic mean basewide background surface soil or subsurface soil concentrations. Background values are from Final Base Background Soil Study Report, Marine Corps Base Camp Lejeune, North Carolina, Baker Environmental, April 25, 2001.

[4] Oak Ridge National Laboratory (ORNL). May 17, 2010. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. http://epa-prgs.oml.gov/chemicals/index.shtml. Adjusted (noncarcinogenic RSLs adjusted by dividing by 10) residential soil RSLs.

[5] Rationale Codes

Selection Reason: Above Screening Levels (ASL)

Detection Limit Above Screening Level (DLASL), not quantitatively evaluated in HHRA

Deletion Reason: No Toxicity Information (NTX)

Essential Nutrient (NUT) Below Screening Level (BSL) Below Background (BBK)

Detection Limit Below Screening Level (DLBSL)

COPC = Chemical of Potential Concern

ARAR/TBC = Applicable or Relevant and Appropriate Requirement/

To Be Considered

NCPSRG = North Carolina Preliminary Soil Remediation Goal, January, 2010

J = Estimated Value

C = Carcinogenic

MG/KG = Milligrams per kilogram

N = Noncarcinogenic

N/A = Not available/not applicable

TABLE 2.9a

Risk Ratio Screening for Surface and Subsurface Soil, Maximum Detected Concentration Camp Johnson Site 17 MCB Camp Lejeune, North Carolina

Analyte	Detection Frequency	Maximum Detected Concentration (Qualifier)	Sample Location of Maximum Detected Concentration	Residential Soil RSL	Acceptable Risk Level	Corresponding Hazard Index ^a	Corresponding Cancer Risk ^b	Target Organ
Metals (mg/kg)								
Chromium (VI)	5 / 5	1.9E+00	IR17-SB05-5-6-10C	2.9E-01	1E-06	NA	7E-06	NA
Cumulative Corresponding Hazard Index ^c						0.0		
Cumulative Corresponding Cancer Risk ^a							7E-06	

Notes:

Constituent selected as COPC if it contributes to an overall Hazard Index by target organ greater than 0.5 or Cumulative Corresponding Cancer Risk greater than 5E-05, otherwise, constituent not selected as COPC.

Constituents selected as COPCs are indicated by shading.

COPC = Chemical of Potential Concern HI = Hazard Index mg/kg = milligrams per kilogram NA = Not available/not applicable

^a Corresponding Hazard Index equals maximum detected concentration divided by the RSL divided by the acceptable risk level.

^b Corresponding Cancer Risk equals maximum detected concentration divided by the RSL divided by the acceptable risk level.

^c Cumulative Corresponding Hazard Index equals sum of Corresponding Hazard Indices for each constituent.

^d Cumulative Corresponding Cancer Risk equals sum of Corresponding Cancer Risks for each constituent.

Exposure Point	CAS Number	Chemical	Minimum [1] Concentration Qualifier	Maximum [1] Concentration Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration [2 Used for Screening	Background [3]	Screening [4] Toxicity Value	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for [5] Contaminant Deletion or Selection
Site 17	71-55-6	1,1,1-Trichloroethane	ND	ND	UG/L		0/2	1 - 1	1.0E+00	N/A	9.1E+02 N	2.0E+02	MCL, 15A NCAC 2L	NO	DLBSL
Sile 17	79-34-5	1,1,2,2-Tetrachloroethane	ND ND	ND ND	UG/L		0/2	1 - 2.4	2.4E+00	N/A	6.7E-02 C	2.0E+02 2.0E-01	15A NCAC 2L	YES	DLASL
	76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane(Freon-113)	ND	ND	UG/L		0/2	1 - 1	1.0E+00	N/A	5.9E+03 N	2.0E+05	15A NCAC 2L	NO	DLBSL
	79-00-5	1.1.2-Trichloroethane	ND	ND	UG/L		0/2	1-1	1.0E+00	N/A	2.4E-01 C	5.0E+00	MCL	YES	DLASL
	75-34-3	1,1-Dichloroethane	ND	ND	UG/L		0/2	1-1	1.0E+00	N/A	2.4E+00 C	6.0E+00	15A NCAC 2L	NO	DLBSL
	75-35-4	1,1-Dichloroethene	ND	ND	UG/L		0/2	1 - 1	1.0E+00	N/A	3.4E+01 N	7.0E+00	MCL, 15A NCAC 2L	NO	DLBSL
	120-82-1	1,2,4-Trichlorobenzene	ND	ND	UG/L		0/2	1 - 1	1.0E+00	N/A	4.1E-01 C**	7.0E+01	MCL, 15A NCAC 2L	YES	DLASL
	96-12-8	1,2-Dibromo-3-chloropropane	ND	ND	UG/L		0/1	2 - 2	2.0E+00	N/A	3.2E-04 C	2.0E-01	MCL	YES	DLASL
												4.0E-02	15A NCAC 2L		
	106-93-4	1,2-Dibromoethane	ND	ND	UG/L		0/2	1 - 1	1.0E+00	N/A	6.5E-03 C	5.0E-02	MCL	YES	DLASL
												2.0E-02	15A NCAC 2L		
	95-50-1	1,2-Dichlorobenzene	ND	ND	UG/L		0/2	1 - 1	1.0E+00	N/A	3.7E+01 N	6.0E+02	MCL	NO	DLBSL
												2.0E+01	15A NCAC 2L		
	107-06-2	1,2-Dichloroethane	ND	ND	UG/L		0/2	1 - 1	1.0E+00	N/A	1.5E-01 C	5.0E+00	MCL	YES	DLASL
												4.0E-01	15A NCAC 2L		
	78-87-5	1,2-Dichloropropane	ND	ND	UG/L		0/2	1 - 1	1.0E+00	N/A	3.9E-01 C*	5.0E+00	MCL	YES	DLASL
												6.0E-01	15A NCAC 2L		
	541-73-1	1,3-Dichlorobenzene	ND	ND	UG/L		0/2	1 - 1	1.0E+00	N/A	4.3E-01 C	2.0E+02	15A NCAC 2L	YES	DLASL
	106-46-7	1,4-Dichlorobenzene	ND	ND	UG/L		0/2	1 - 1	1.0E+00	N/A	4.3E-01 C	7.5E+01	MCL	YES	DLASL
												6.0E+00	15A NCAC 2L		
	78-93-3	2-Butanone	ND	ND	UG/L		0/2	5 - 5	5.0E+00	N/A	7.1E+02 N	4.0E+03	15A NCAC 2L	NO	DLBSL
	591-78-6	2-Hexanone	ND	ND	UG/L		0/2	5 - 5	5.0E+00	N/A	4.7E+00 N	N/A		YES	DLASL
	108-10-1	4-Methyl-2-pentanone	ND	ND	UG/L		0/2	5 - 5	5.0E+00	N/A	2.0E+02 N	N/A		NO	DLBSL
	67-64-1	Acetone	ND	ND	UG/L		0/2	5 - 5	5.0E+00	N/A	2.2E+03 N	6.0E+03	15A NCAC 2L	NO	DLBSL
	71-43-2	Benzene	ND	ND	UG/L		0/2	1 - 1	1.0E+00	N/A	4.1E-01 C	5.0E+00	MCL	YES	DLASL
												1.0E+00	15A NCAC 2L		
	75-27-4	Bromodichloromethane	ND	ND	UG/L		0/2	1 - 1	1.0E+00	N/A	1.2E-01 C	8.0E+01	MCL	YES	DLASL
	75.05.0						0.40		4.05.00		. ==	6.0E-01	15A NCAC 2L		D. DO.
	75-25-2	Bromoform	ND	ND	UG/L		0/2	1 - 1	1.0E+00	N/A	8.5E+00 C*	8.0E+01	MCL	NO	DLBSL
	74-83-9	Bromomethane	ND	ND	1107		0/2	1 - 1.1	1.1E+00	N/A	8.7E-01 N	4.0E+00 N/A	15A NCAC 2L	YES	DLASL
	74-83-9 75-15-0	Carbon disulfide	ND ND	ND ND	UG/L UG/L		0/2	1 - 1.1	1.1E+00 1.0E+00	N/A N/A	1.0E+02 N	7.0E+02	15A NCAC 2L	NO	DLASL
	75-15-0 56-23-5	Carbon disullide Carbon tetrachloride	ND ND	ND ND	UG/L		0/2	1-1	1.0E+00 1.0E+00	N/A N/A	4.4E-01 C	7.0E+02 5.0E+00	MCL	YES	DLBSL
	30-23-3	Carbon terractillonge	IND	ND	JUG/L		0/2	1-1	1.00+00	IN/A	4.4E-01 C	3.0E-01	15A NCAC 2L	153	DLASL
	108-90-7	Chlorobenzene	ND	ND	UG/L		0/2	1 - 1	1.0E+00	N/A	9.1E+00 N	1.0E+02	MCL	NO	DLBSL
	100-30-7	OHIOTODOTIZENE	ND	IND	JG/L		U/Z	1-1	1.02+00	IN/A	3.1L+00 N	5.0E+01	15A NCAC 2L	140	DLDGL

Exposure Point	CAS Number	Chemical	Minimum [1] Concentration Qualifier	Maximum [1] Concentration Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration [2] Used for Screening	Background [3] Value	Screening [4] Toxicity Value	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for [5 Contaminant Deletion or Selection
	75-00-3	Chloroethane	ND	ND	UG/L		0/2	1 - 1	1.0E+00	N/A	2.1E+03 N	3.0E+03	15A NCAC 2L	NO	DLBSL
	67-66-3	Chloroform	4.4E+00	4.4E+00	UG/L	IR17-TW01-09C	1/2	1 - 1	4.4E+00	N/A	1.9E-01 C	8.0E+01	MCL	YES	ASL
												7.0E+01	15A NCAC 2L		
	74-87-3	Chloromethane	ND	ND	UG/L		0/2	1 - 1	1.0E+00	N/A	1.9E+01 N	3.0E+00	15A NCAC 2L	NO	DLBSL
	156-59-2	cis-1,2-Dichloroethene	ND	ND	UG/L		0/2	1 - 1	1.0E+00	N/A	3.7E+01 N	7.0E+01	MCL, 15A NCAC 2L	NO	DLBSL
		cis-1,3-Dichloropropene	ND	ND	UG/L		0/2	1 - 1	1.0E+00	N/A	4.3E-01 C*	4.0E-01	15A NCAC 2L	YES	DLASL
	110-82-7	Cyclohexane	ND	ND	UG/L		0/2	1 - 1	1.0E+00	N/A	1.3E+03 N	N/A		NO	DLBSL
	124-48-1	Dibromochloromethane	ND	ND	UG/L		0/2	1 - 1	1.0E+00	N/A	1.5E-01 C	6.0E+01 4.0E-01	MCL 15A NCAC 2L	YES	DLASL
	75-71-8	Dichlorodifluoromethane (Freon-12)	ND	ND	UG/L		0/2	1 - 1	1.0E+00	N/A	3.9E+01 N	1.0E+03	15A NCAC 2L	NO	DLBSL
	100-41-4	Ethylbenzene	ND	ND	UG/L		0/2	1-1	1.0E+00	N/A	1.5E+00 C	7.0E+02	MCL	NO	DLBSL
	100 41 4	Ethylbenzene	ND	NB	OOIL		0/2		1.02100	1073	1.52100 0	6.0E+02	15A NCAC 2L	140	DEBOL
	98-82-8	Isopropylbenzene	ND	ND	UG/L		0/2	1 - 1	1.0E+00	N/A	6.8E+01 N	7.0E+01	15A NCAC 2L	NO	DLBSL
	79-20-9	Methyl acetate	ND	ND	UG/L		0/2	1-1	1.0E+00	N/A	3.7E+03 N	N/A		NO	DLBSL
	108-87-2	Methylcyclohexane	ND	ND	UG/L		0/2	1 - 1	1.0E+00	N/A	8.8E+01 N	N/A		NO	DLBSL
	75-09-2	Methylene chloride	ND	ND	UG/L		0/2	1 - 1	1.0E+00	N/A	4.8E+00 C	5.0E+00	MCL, 15A NCAC 2L	NO	DLBSL
	1634-04-4	Methyl-tert-butyl ether (MTBE)	ND	ND	UG/L		0/2	1 - 1	1.0E+00	N/A	1.3E+01 C	2.0E+01	15A NCAC 2L	NO	DLBSL
	100-42-5	Styrene	ND	ND	UG/L		0/2	1 - 1	1.0E+00	N/A	1.6E+02 N	1.0E+02	MCL	NO	DLBSL
												7.0E+01	15A NCAC 2L		
	127-18-4	Tetrachloroethene	ND	ND	UG/L		0/2	1 - 1.1	1.1E+00	N/A	1.1E-01 C	5.0E+00	MCL	YES	DLASL
												7.0E-01	15A NCAC 2L		
	108-88-3	Toluene	ND	ND	UG/L		0/2	1 - 1	1.0E+00	N/A	2.3E+02 N	1.0E+03	MCL	NO	DLBSL
												6.0E+02	15A NCAC 2L		
	156-60-5	trans-1,2-Dichloroethene	ND	ND	UG/L		0/2	1 - 1	1.0E+00	N/A	1.1E+01 N	1.0E+02	MCL, 15A NCAC 2L	NO	DLBSL
	10061-02-6	trans-1,3-Dichloropropene	ND	ND	UG/L		0/2	1 - 1	1.0E+00	N/A	4.3E-01 C*	4.0E-01	15A NCAC 2L	YES	DLASL
	79-01-6	Trichloroethene	ND	ND	UG/L		0/2	1 - 5.1	5.1E+00	N/A	2.0E+00 C	5.0E+00	MCL	YES	DLASL
												3.0E+00	15A NCAC 2L		
	75-69-4	Trichlorofluoromethane(Freon-11)	ND	ND	UG/L		0/2	1 - 1	1.0E+00	N/A	1.3E+02 N	2.0E+03	15A NCAC 2L	NO	DLBSL
	75-01-4	Vinyl chloride	ND	ND	UG/L		0/2	1 - 1	1.0E+00	N/A	1.6E-02 C	2.0E+00	MCL	YES	DLASL
											1	3.0E-02	15A NCAC 2L		
	1330-20-7	Xylene, total	ND	ND	UG/L		0/2	1 - 1.2	1.2E+00	N/A	2.0E+01 N	1.0E+04	MCL	NO	DLBSL
					l						l <u></u>	5.0E+02	15A NCAC 2L	1	
	92-52-4	1,1-Biphenyl	ND	ND	UG/L		0/2	10 - 10	1.0E+01	N/A	1.8E+02 N	4.0E+02	15A NCAC 2L	NO	DLBSL
		2,2'-Oxybis(1-chloropropane)	ND	ND	UG/L		0/2	10 - 10	1.0E+01	N/A	3.2E-01 C	N/A		YES	DLASL
	95-95-4	2,4,5-Trichlorophenol	ND	ND	UG/L		0/2	10 - 10	1.0E+01	N/A	3.7E+02 N	N/A		NO	DLBSL
	120-83-2 105-67-9	2,4-Dichlorophenol 2,4-Dimethylphenol	ND ND	ND ND	UG/L UG/L		0/2 0/2	10 - 10 10 - 10	1.0E+01 1.0E+01	N/A N/A	1.1E+01 N 7.3E+01 N	N/A 1.0E+02	15A NCAC 2L	NO NO	DLBSL DLBSL

Exposure Point	CAS Number	Chemical	Minimum [1] Concentration Qualifier	Maximum [1] Concentration Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration [2] Used for Screening	Background [3] Value	Screening [4] Toxicity Value	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for [5] Contaminant Deletion or Selection
	51-28-5	2,4-Dinitrophenol	ND	ND	UG/L		0/2	20 - 20	2.0E+01	N/A	7.3E+00 N	N/A		YES	DLASL
	121-14-2	2,4-Dinitrotoluene	ND	ND	UG/L		0/2	10 - 10	1.0E+01	N/A	2.2E-01 C	N/A		YES	DLASL
	606-20-2	2,6-Dinitrotoluene	ND	ND	UG/L		0/2	10 - 10	1.0E+01	N/A	3.7E+00 N	N/A		YES	DLASL
	91-58-7	2-Chloronaphthalene	ND	ND	UG/L		0/2	10 - 10	1.0E+01	N/A	2.9E+02 N	N/A		NO	DLBSL
	95-57-8	2-Chlorophenol	ND	ND	UG/L		0/2	10 - 10	1.0E+01	N/A	1.8E+01 N	4.0E-01	15A NCAC 2L	NO	DLBSL
	91-57-6	2-Methylnaphthalene	ND	ND	UG/L		0/2	10 - 10	1.0E+01	N/A	1.5E+01 N	3.0E+01	15A NCAC 2L	NO	DLBSL
	95-48-7	2-Methylphenol	ND	ND	UG/L		0/2	10 - 10	1.0E+01	N/A	1.8E+02 N	N/A		NO	DLBSL
	88-74-4	2-Nitroaniline	ND	ND	UG/L		0/2	10 - 10	1.0E+01	N/A	3.7E+01 N	N/A		NO	DLBSL
	88-75-5	2-Nitrophenol	ND	ND	UG/L		0/2	10 - 10	1.0E+01	N/A	1.8E+01 N	N/A		NO	DLBSL
	91-94-1	3,3'-Dichlorobenzidine	ND	ND	UG/L		0/2	20 - 20	2.0E+01	N/A	1.5E-01 C	N/A		YES	DLASL
	99-09-2	3-Nitroaniline	ND	ND	UG/L		0/2	10 - 10	1.0E+01	N/A	3.7E+01 N	N/A		NO	DLBSL
	534-52-1	4,6-Dinitro-2-methylphenol	ND	ND	UG/L		0/2	20 - 20	2.0E+01	N/A	2.9E-01 N	N/A		YES	DLASL
	101-55-3	4-Bromophenyl-phenylether	ND	ND	UG/L		0/2	10 - 10	1.0E+01	N/A	N/A	N/A		NO	NTX
	59-50-7	4-Chloro-3-methylphenol	ND	ND	UG/L		0/2	10 - 10	1.0E+01	N/A	3.7E+02 N	N/A		NO	DLBSL
	106-47-8	4-Chloroaniline	ND	ND	UG/L		0/2	10 - 10	1.0E+01	N/A	3.4E-01 C	N/A		YES	DLASL
	7005-72-3	4-Chlorophenyl-phenylether	ND	ND	UG/L		0/2	10 - 10	1.0E+01	N/A	1.8E+01 N	N/A		NO	DLBSL
	106-44-5	4-Methylphenol	ND	ND	UG/L		0/2	20 - 20	2.0E+01	N/A	1.8E+01 N	4.0E+01	15A NCAC 2L	YES	DLASL
	100-01-6	4-Nitroaniline	ND	ND	UG/L		0/2	10 - 10	1.0E+01	N/A	3.4E+00 C*	N/A		YES	DLASL
	100-02-7	4-Nitrophenol	ND	ND	UG/L		0/2	20 - 20	2.0E+01	N/A	1.2E-01 C	N/A		YES	DLASL
	83-32-9	Acenaphthene	ND	ND	UG/L		0/2	10 - 10	1.0E+01	N/A	2.2E+02 N	8.0E+01	15A NCAC 2L	NO	DLBSL
	208-96-8	Acenaphthylene	ND	ND	UG/L		0/2	10 - 10	1.0E+01	N/A	2.2E+02 N	2.0E+02	15A NCAC 2L	NO	DLBSL
	98-86-2	Acetophenone	ND	ND	UG/L		0/2	10 - 10	1.0E+01	N/A	3.7E+02 N	N/A		NO	DLBSL
	120-12-7	Anthracene	ND	ND	UG/L		0/2	10 - 10	1.0E+01	N/A	1.1E+03 N	2.0E+03	15A NCAC 2L	NO	DLBSL
	1912-24-9	Atrazine	ND	ND	UG/L		0/2	20 - 20	2.0E+01	N/A	2.9E-01 C	3.0E+00	MCL, 15A NCAC 2L	YES	DLASL
	56-55-3	Benzo(a)anthracene	ND	ND	UG/L		0/2	10 - 10	1.0E+01	N/A	2.9E-02 C	5.0E-02	15A NCAC 2L	YES	DLASL
	50-32-8	Benzo(a)pyrene	ND	ND	UG/L		0/2	10 - 10	1.0E+01	N/A	2.9E-03 C	2.0E-01	MCL	YES	DLASL
		· ///										5.0E-03	15A NCAC 2L		
	205-99-2	Benzo(b)fluoranthene	ND	ND	UG/L		0/2	10 - 10	1.0E+01	N/A	2.9E-02 C	5.0E-02	15A NCAC 2L	YES	DLASL
	191-24-2	Benzo(g,h,i)perylene	ND	ND	UG/L		0/2	10 - 10	1.0E+01	N/A	1.1E+02 N	2.0E+02	15A NCAC 2L	NO	DLBSL
	207-08-9	Benzo(k)fluoranthene	ND	ND	UG/L		0/2	10 - 10	1.0E+01	N/A	2.9E-01 C	5.0E-01	15A NCAC 2L	YES	DLASL
	111-91-1	bis(2-Chloroethoxy)methane	ND	ND	UG/L		0/2	10 - 10	1.0E+01	N/A	1.1E+01 N	N/A		NO	DLBSL
	111-44-4	bis(2-Chloroethyl)ether	ND	ND	UG/L		0/2	10 - 10	1.0E+01	N/A	1.2E-02 C	3.0E-02	15A NCAC 2L	YES	DLASL
	117-81-7	bis(2-Ethylhexyl)phthalate	ND	ND	UG/L		0/2	10 - 10	1.0E+01	N/A	4.8E+00 C	6.0E+00	MCL	YES	DLASL
												3.0E+00	15A NCAC 2L		_
	85-68-7	Butylbenzylphthalate	ND	ND	UG/L		0/2	10 - 10	1.0E+01	N/A	3.5E+01 C	1.0E+03	15A NCAC 2L	NO	DLBSL
	105-60-2	Caprolactam	4.5E+00 J	4.5E+00 J	UG/L	IR17-TW01-09C	1/2	10 - 10	4.5E+00	N/A	1.8E+03 N	4.0E+03	15A NCAC 2L	NO	BSL
	86-74-8	Carbazole	ND	ND	UG/L		0/2	10 - 10	1.0E+01	N/A	N/A	N/A		NO	NTX

Exposure Point	CAS Number	Chemical	Minimum [1] Concentration Qualifier	Maximum [1] Concentration Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration [2] Used for Screening	Background [3] Value	Screening [4] Toxicity Value	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for [5] Contaminant Deletion or Selection
	218-01-9	Chrysene	ND	ND	UG/L		0/2	10 - 10	1.0E+01	N/A	2.9E+00 C	5.0E+00	15A NCAC 2L	YES	DLASL
	53-70-3	Dibenz(a,h)anthracene	ND	ND	UG/L		0/2	10 - 10	1.0E+01	N/A	2.9E-03 C	5.0E-03	15A NCAC 2L	YES	DLASL
	132-64-9	Dibenzofuran	ND	ND	UG/L		0/2	10 - 10	1.0E+01	N/A	3.7E+00 N	N/A		YES	DLASL
	84-66-2	Diethylphthalate	ND	ND	UG/L		0/2	10 - 10	1.0E+01	N/A	2.9E+03 N	6.0E+03	15A NCAC 2L	NO	DLBSL
	131-11-3	Dimethyl phthalate	ND	ND	UG/L		0/2	10 - 10	1.0E+01	N/A	N/A	N/A		NO	NTX
	84-74-2	Di-n-butylphthalate	ND	ND	UG/L		0/2	20 - 20	2.0E+01	N/A	3.7E+02 N	7.0E+02	15A NCAC 2L	NO	DLBSL
	117-84-0	Di-n-octylphthalate	ND	ND	UG/L		0/2	10 - 10	1.0E+01	N/A	4.8E+00 C	1.0E+02	15A NCAC 2L	YES	DLASL
	206-44-0	Fluoranthene	ND	ND	UG/L		0/2	10 - 10	1.0E+01	N/A	1.5E+02 N	3.0E+02	15A NCAC 2L	NO	DLBSL
	86-73-7	Fluorene	ND	ND	UG/L		0/2	10 - 10	1.0E+01	N/A	1.5E+02 N	3.0E+02	15A NCAC 2L	NO	DLBSL
	118-74-1	Hexachlorobenzene	ND	ND	UG/L		0/2	10 - 10	1.0E+01	N/A	4.2E-02 C	1.0E+00	MCL	YES	DLASL
												2.0E-02	15A NCAC 2L		
	87-68-3	Hexachlorobutadiene	ND	ND	UG/L		0/2	10 - 10	1.0E+01	N/A	8.6E-01 C*	4.0E-01	15A NCAC 2L	YES	DLASL
	77-47-4	Hexachlorocyclopentadiene	ND	ND	UG/L		0/2	10 - 10	1.0E+01	N/A	2.2E+01 N	5.0E+01	MCL	NO	DLBSL
	67-72-1	Hexachloroethane	ND	ND	UG/L		0/2	10 - 10	1.0E+01	N/A	3.7E+00 C**	N/A		YES	DLASL
	193-39-5	Indeno(1,2,3-cd)pyrene	ND	ND	UG/L		0/2	10 - 10	1.0E+01	N/A	2.9E-02 C	5.0E-02	15A NCAC 2L	YES	DLASL
	78-59-1	Isophorone	ND	ND	UG/L		0/2	10 - 10	1.0E+01	N/A	7.1E+01 C	4.0E+01	15A NCAC 2L	NO	DLBSL
	91-20-3	Naphthalene	ND	ND	UG/L		0/2	10 - 10	1.0E+01	N/A	1.4E-01 C*	6.0E+00	15A NCAC 2L	YES	DLASL
	621-64-7	n-Nitroso-di-n-propylamine	ND	ND	UG/L		0/2	10 - 10	1.0E+01	N/A	9.6E-03 C	N/A		YES	DLASL
	86-30-6	n-Nitrosodiphenylamine	ND	ND	UG/L		0/2	10 - 10	1.0E+01	N/A	1.4E+01 C	N/A		NO	DLBSL
	98-95-3	Nitrobenzene	ND	ND	UG/L		0/2	10 - 10	1.0E+01	N/A	1.2E-01 C	N/A		YES	DLASL
	87-86-5	Pentachlorophenol	ND	ND	UG/L		0/2	20 - 20	2.0E+01	N/A	5.6E-01 C	1.0E+00 3.0E-01	MCL 15A NCAC 2L	YES	DLASL
	05.04.0	Dhaaaathaaa	ND	ND			0/0	40 40	4.05.04	N1/A	1.1E+03 N			NO	DLBSL
	85-01-8	Phenanthrene	ND	ND ND	UG/L		0/2 0/2	10 - 10 10 - 10	1.0E+01	N/A		2.0E+02	15A NCAC 2L	NO	_
	108-95-2	Phenol	ND	ND ND	UG/L				1.0E+01	N/A	1.1E+03 N	3.0E+01	15A NCAC 2L	NO	DLBSL DLBSL
	129-00-0 72-54-8	Pyrene 4,4'-DDD	ND ND	ND ND	UG/L		0/2 0/2	10 - 10	1.0E+01 5.0E-02	N/A N/A	1.1E+02 N 2.8E-01 C	2.0E+02	15A NCAC 2L 15A NCAC 2L	NO	DLBSL
					UG/L			0.05 - 0.05				1.0E-01	15A NUAU ZL	NO	
	72-55-9 50-29-3	4,4'-DDE 4,4'-DDT	ND ND	ND ND	UG/L UG/L		0/2 0/2	0.05 - 0.05 0.05 - 0.05	5.0E-02 5.0E-02	N/A N/A	2.0E-01 C 2.0E-01 C*	N/A 1.0E-01	15A NCAC 2L	NO	DLBSL DLBSL
	309-00-2	Aldrin	ND ND	ND ND	UG/L		0/2	0.05 - 0.05	5.0E-02 5.0E-02	N/A N/A	4.0E-03 C	1.0E-01 N/A	IDA NUAU ZL	YES	DLBSL
	319-84-6	alpha-BHC	ND ND	ND ND	UG/L		0/2	0.05 - 0.05	5.0E-02 5.0E-02	N/A N/A	4.0E-03 C 1.1E-02 C	2.0E-02	15A NCAC 2L	YES	DLASL
		· ·	ND ND	ND ND	UG/L		0/2			N/A N/A			MCL	NO	DLASL
	5103-71-9	alpha-Chlordane	ND	ND	UG/L		0/2	0.05 - 0.05	5.0E-02	IN/A	1.9E-01 C*	2.0E+00 1.0E-01		NO	DEROF
	12674-11-2	Aroclor-1016	ND	ND	UG/L		0/2	0.5 - 0.5	5.0E-01	N/A	2.6E-01 C**	1.0E-01 5.0E-01	15A NCAC 2L MCL	YES	DLASL
	11104-28-2	Aroclor-1221	ND	ND	UG/L		0/2	0.5 - 0.5	5.0E-01	N/A	6.8E-03 C	5.0E-01	MCL	YES	DLASL
	11141-16-5	Aroclor-1232	ND	ND	UG/L		0/2	0.5 - 0.5	5.0E-01	N/A	6.8E-03 C	5.0E-01	MCL	YES	DLASL
	53469-21-9	Aroclor-1242	ND	ND	UG/L		0/2	0.5 - 0.5	5.0E-01	N/A	3.4E-02 C	5.0E-01	MCL	YES	DLASL
	12672-29-6	Aroclor-1248	ND	ND	UG/L		0/2	0.5 - 0.5	5.0E-01	N/A	3.4E-02 C	5.0E-01	MCL	YES	DLASL
		Aroclor-1254	ND	ND	UG/L		0/2	0.5 - 0.5	5.0E-01	N/A	3.4E-02 C*	5.0E-01	MCL	YES	DLASL

Exposure Point	CAS Number	Chemical	Minimum [1] Concentration Qualifier	Maximum [1] Concentration Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration [2] Used for Screening	Background [3] Value	Screening [4] Toxicity Value	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for [5] Contaminant Deletion or Selection
	11096-82-5	Aroclor-1260	ND	ND	UG/L		0/2	0.5 - 0.5	5.0E-01	N/A	3.4E-02 C	5.0E-01	MCL	YES	DLASL
	319-85-7	beta-BHC	ND	ND	UG/L		0/2	0.05 - 0.05	5.0E-02	N/A	3.7E-02 C	2.0E-02	15A NCAC 2L	YES	DLASL
	319-86-8	delta-BHC	ND	ND	UG/L		0/2	0.05 - 0.05	5.0E-02	N/A	3.7E-02 C	2.0E-02	15A NCAC 2L	YES	DLASL
	60-57-1	Dieldrin	ND	ND	UG/L		0/2	0.05 - 0.05	5.0E-02	N/A	4.2E-03 C	2.0E-03	15A NCAC 2L	YES	DLASL
	959-98-8	Endosulfan I	ND	ND	UG/L		0/2	0.05 - 0.05	5.0E-02	N/A	2.2E+01 N	4.0E+01	15A NCAC 2L	NO	DLBSL
	33213-65-9	Endosulfan II	ND	ND	UG/L		0/2	0.05 - 0.05	5.0E-02	N/A	2.2E+01 N	4.0E+01	15A NCAC 2L	NO	DLBSL
	1031-07-8	Endosulfan sulfate	ND	ND	UG/L		0/2	0.05 - 0.05	5.0E-02	N/A	2.2E+01 N	4.0E+01	15A NCAC 2L	NO	DLBSL
	72-20-8	Endrin	ND	ND	UG/L		0/2	0.05 - 0.05	5.0E-02	N/A	1.1E+00 N	2.0E+00	MCL, 15A NCAC 2L	NO	DLBSL
	7421-93-4	Endrin aldehyde	ND	ND	UG/L		0/2	0.05 - 0.05	5.0E-02	N/A	1.1E+00 N	2.0E+00	15A NCAC 2L	NO	DLBSL
	53494-70-5	Endrin ketone	ND	ND	UG/L		0/2	0.05 - 0.05	5.0E-02	N/A	1.1E+00 N	2.0E+00	15A NCAC 2L	NO	DLBSL
	58-89-9	gamma-BHC (Lindane)	ND	ND	UG/L		0/2	0.05 - 0.05	5.0E-02	N/A	6.1E-02 C	2.0E-01	MCL	NO	DLBSL
												3.0E-02	15A NCAC 2L		
	5103-74-2	gamma-Chlordane	ND	ND	UG/L		0/2	0.05 - 0.05	5.0E-02	N/A	1.9E-01 C*	2.0E+00	MCL	NO	DLBSL
												1.0E-01	15A NCAC 2L		
	76-44-8	Heptachlor	ND	ND	UG/L		0/2	0.05 - 0.05	5.0E-02	N/A	1.5E-02 C	4.0E-01	MCL	YES	DLASL
												8.0E-03	15A NCAC 2L		
	1024-57-3	Heptachlor epoxide	ND	ND	UG/L		0/2	0.05 - 0.05	5.0E-02	N/A	7.4E-03 C*	2.0E-01	MCL	YES	DLASL
												4.0E-03	15A NCAC 2L		
	72-43-5	Methoxychlor	ND	ND	UG/L		0/2	0.05 - 0.05	5.0E-02	N/A	1.8E+01 N	4.0E+01	MCL, 15A NCAC 2L	NO	DLBSL
	8001-35-2	Toxaphene	ND	ND	UG/L		0/2	1 - 1	1.0E+00	N/A	6.1E-02 C	3.0E+00	MCL	YES	DLASL
												3.0E-02	15A NCAC 2L		
	7429-90-5	Aluminum	1.3E+03	1.7E+03	UG/L	IR17-TW01-09C	2/2	1000 - 1000	1.7E+03	1.9E+03	3.7E+03 N	50 - 200	SMCL	NO	BSL, BBK
	7440-36-0	Antimony	ND	ND	UG/L		0/2	20 - 20	2.0E+01	3.3E+00	1.5E+00 N	6.0E+00	MCL	YES	DLASL
	7440-38-2	Arsenic	ND	ND	UG/L		0/2	20 - 20	2.0E+01	5.8E+00	4.5E-02 C	1.0E+01	MCL, 15A NCAC 2L	YES	DLASL
	7440-39-3	Barium	9.2E+00 J	4.7E+02	UG/L	IR17-TW01-09C	2/2	50 - 50	4.7E+02	8.6E+01	7.3E+02 N	2.0E+03	MCL	NO	BSL
												7.0E+02	15A NCAC 2L		
	7440-41-7	Beryllium	1.6E-01 J	1.6E-01 J	UG/L	IR17-TW02D-09C	1/2	2 - 2	1.6E-01	3.1E-01	7.3E+00 N	4.0E+00	MCL	NO	BSL, BBK
	7440-43-9	Cadmium	ND	ND	UG/L		0/2	6 - 6	6.0E+00	3.6E-01	1.8E+00 N	5.0E+00	MCL	YES	DLASL
												2.0E+00	15A NCAC 2L		
	7440-70-2	Calcium	9.1E+02 J	1.1E+05	UG/L	IR17-TW01-09C	2/2	1000 - 1000	1.1E+05	6.9E+04	N/A	N/A		NO	NUT
	7440-47-3	Chromium	1.8E+00 J	1.8E+00 J	UG/L	IR17-TW01-09C	1/2	20 - 20	1.8E+00	3.1E+00	4.3E-02 C	1.0E+02	MCL	NO	BBK
											1	1.0E+01	15A NCAC 2L		
	7440-48-4	Cobalt	ND ND	ND ND	UG/L		0/2	5 - 5	5.0E+00	3.4E+00	1.1E+00 N	N/A	MCI	YES NO	DLASL DLBSL
	7440-50-8	Copper	ND	ND	UG/L		0/2	20 - 20	2.0E+01	2.8E+00	1.5E+02 N	1.3E+03	MCL	NO	DEBSE
	7400 00 0		4.05.00	0.05.00		ID47 TM04 CCC	0/0	450 450	0.05.00	0.05.00	0.05.00	1.0E+03	15A NCAC 2L	N.C	DOL DOL
	7439-89-6	Iron	1.2E+03	2.6E+03	UG/L	IR17-TW01-09C	2/2	150 - 150	2.6E+03	6.0E+03	2.6E+03 N	3.0E+02	SMCL, 15A NCAC 2L	NO	BSL, BBK
	7439-92-1	Lead	3.2E+00 J	3.2E+00 J	UG/L	IR17-TW02D-09C	2/2	20 - 20	3.2E+00	2.8E+00	N/A	1.5E+01	MCL, 15A NCAC 2L	NO	BSL
	7439-95-4	Magnesium	5.4E+02	5.7E+04	UG/L	IR17-TW01-09C	2/2	250 - 250	5.7E+04	6.4E+03	N/A	N/A		NO	NUT

Table 2.10

OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN

Camp Johnson Site 17 MCB Camp Lejeune, North Carolina

Scenario Timeframe: Future Medium: Groundwater Exposure Medium: Groundwater

Exposure Point	CAS Number	Chemical	Minimum [1] Concentration Qualifier	Maximum [1] Concentration Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration [2] Used for Screening	Background [3] Value	Screening [4] Toxicity Value	Potential ARAR/TBC Value	Potential ARAR/TBC Source		Rationale for [5] Contaminant Deletion or Selection
	7439-96-5	Manganese	1.8E+01	5.8E+01	UG/L	IR17-TW01-09C	2/2	5 - 5	5.8E+01	2.1E+02	8.8E+01 N	5.0E+01	SMCL, 15A NCAC 2L	NO	BSL, BBK
	7439-97-6	Mercury	2.5E-01	2.5E-01	UG/L	IR17-TW01-09C	1/2	0.2 - 0.2	2.5E-01	1.0E-01	1.1E+00 N	2.0E+00	MCL	NO	BSL
												1.0E+00	15A NCAC 2L		
	7440-02-0	Nickel	1.4E+01	1.4E+01	UG/L	IR17-TW01-09C	1/2	10 - 10	1.4E+01	8.0E+00	7.3E+01 N	1.0E+02	15A NCAC 2L	NO	BSL
	7440-09-7	Potassium	1.1E+03	8.3E+03	UG/L	IR17-TW01-09C	2/2	1000 - 1000	8.3E+03	3.3E+03	N/A	N/A		NO	NUT
	7782-49-2	Selenium	4.2E+00 J	4.2E+00 J	UG/L	IR17-TW02D-09C	1/2	20 - 20	4.2E+00	3.1E+00	1.8E+01 N	5.0E+01	MCL	NO	BSL
												2.0E+01	15A NCAC 2L		
	7440-22-4	Silver	ND	ND	UG/L		0/2	20 - 20	2.0E+01	7.7E-01	1.8E+01 N	2.0E+01	15A NCAC 2L	YES	DLASL
												1.0E+02	SMCL		
	7440-23-5	Sodium	7.5E+03	5.0E+05	UG/L	IR17-TW01-09C	2/2	2500 - 2500	5.0E+05	2.3E+04	N/A	N/A		NO	NUT
	7440-28-0	Thallium	ND	ND	UG/L		0/2	30 - 30	3.0E+01	3.8E+00	N/A	2.0E+00	MCL	NO	NTX
	7440-62-2	Vanadium	ND	ND	UG/L		0/2	50 - 50	5.0E+01	4.7E+00	1.8E+01 N	N/A		YES	DLASL
	7440-66-6	Zinc	5.7E+00 J	1.0E+01 J	UG/L	IR17-TW01-09C	2/2	50 - 50	1.0E+01	4.2E+01	1.1E+03 N	1.0E+03	15A NCAC 2L	NO	BSL, BBK
												5.0E+03	SMCL		

- [1] Minimum/Maximum detected concentrations.
- [2] Maximum concentration is used for screening. If the chemical was not detected, the maximum detection limit is used for screening.
- [3] Background values are two times the arithmetic mean basewide background shallow groundwater concentrations. Background values are from Final Base Background Soil Study Report, Marine Corps Base Camp Lejeune, North Carolina, Baker Environmental, April 25, 2001.
- [4] Oak Ridge National Laboratory (ORNL). May 17, 2010. Regional Screening Levels for Chemical Contaminants at Superfund Sites.

http://epa-prgs.ornl.gov/chemicals/index.shtml. Adjusted (noncarcinogenic RSLs adjusted by dividing by 10) tap water RSLs.

RSL value for n-Hexane used as surrogate for Methylcyclohexane.

RSL value for 1,4-Dichlorobenzene used as a surrogate for 1,3-Dichlorobenzene

RSL value for 2-Nitroaniline used as surrogate for 3-Nitroaniline.

RSL value for methoxychlor used as surrogate for 4-chlorophenyl-phenylether.

RSL value for nitrobenzene used as surrogate for 4-nitrophenol.

RSL value for acenaphthene used as surrogate for acenaphthylene.

RSL value for pyrene used as surrogate for benzo(g,h,i)perylene.

RSL value for anthracene used as surrogate for phenanthrene.

RSL value for technical chlordane used as surrogate for alpha-chlordane.

RSL value for technical-HCH used as surrogate for delta-BHC.

RSL value for technical chlordane used as surrogate for gamma-chlordane.

RSL value for 1,3-dichloropropene used as a surrogate for cis-1,3-dichloropropene and trans-1,3-dichloropropene.

RSL value for endosulfan used as surrogate for endosulfan I, endosulfan II, and endosulfan sulfate.

RSL value for endrin used as surrogate for endrin aldehyde and endrin ketone.

RSL value for 2-chlorophenol used as surrogate for 4-chloro-3-methylphenol and 2-nitrophenol.

RSL value for chromium VI used for total chromium.

[5] Rationale Codes

Selection Reason: Above Screening Levels (ASL)

Detection Limit Above Screening Level (DLASL), not quantitatively evaluated in HHRA

Deletion Reason: No Toxicity Information (NTX)

Essential Nutrient (NUT)

Essential Nutrient (NUT)
Below Screening Level (BSL)
Below Background (BBK)

Detection Limit Below Screening Level (DLBSL)

COPC = Chemical of Potential Concern

ARAR/TBC = Applicable or Relevant and Appropriate Requirement/

To Be Considered

MCL = Maximum Contaminant Level from EPA's National Primary Drinking Water Standards

SMCL = Secondary Maximum Contaminant Level

15A NCAC 2L = North Carolina Classifications and Groundwater Quality Standards,

January 2010.

J = Estimated Value

 $C^* = N$ screening level < 100x C screening level, therefore

N screening value/10 used as screening level

C** = N screening level < 10x C screening level, therefore

N screening value/10 used as screening level

N = Noncarcinogenic

N/A = Not available/not applicable

ND = Not detected

UG/L = Micrograms per liter

TABLE 2109a

Risk Ratio Screening for Groundwater, Maximum Detected Concentration Camp Johnson Site 17 MCB Camp Lejeune, North Carolina

Analyte	Detection Frequency	Detected	Sample Location of Maximum Detected Concentration	Tap Water RSL	Acceptable Risk Level	Corresponding Hazard Index ^a	Corresponding Cancer Risk ^b	Target Organ
Volatile Organic Compounds (ug/L)								
Chloroform	1 / 2	4.4E+00	IR17-TW01-09C	1.9E-01	1E-06	NA	2E-05	NA
Cumulative Corresponding Hazard Index ^c	·	<u> </u>			·	NA		_
Cumulative Corresponding Cancer Risk ^a							2E-05	

Notes:

Constituent selected as COPC if it contributes to an overall Hazard Index by target organ greater than 0.5 or Cumulative Corresponding Cancer Risk greater than 5E-05, otherwise, constituent not selected as COPC.

Constituents selected as COPCs are indicated by shading.

COPC = Chemical of Potential Concern HI = Hazard Index

J = Estimated Value

ug/L = micrograms per liter

NA = Not available/not applicable

^a Corresponding Hazard Index equals maximum detected concentration divided by the RSL divided by the acceptable risk level.

^b Corresponding Cancer Risk equals maximum detected concentration divided by the RSL divided by the acceptable risk level.

 $^{^{\}rm c} \ {\rm Cumulative} \ {\rm Corresponding} \ {\rm Hazard} \ {\rm Index} \ {\rm equals} \ {\rm sum} \ {\rm of} \ {\rm Corresponding} \ {\rm Hazard} \ {\rm Indices} \ {\rm for} \ {\rm each} \ {\rm constituent}.$

^d Cumulative Corresponding Cancer Risk equals sum of Corresponding Cancer Risks for each constituent.

Exposure Point	CAS Number	Chemical	Minimum [1] Concentration Qualifier	Maximum [1] Concentration Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration [2] Used for Screening	Background [3] Value	Screening [4] Toxicity Value	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for [5] Contaminant Deletion or Selection
Site 85	71-55-6	1,1,1-Trichloroethane	ND	ND	MG/KG		0/10	0.0043 - 0.0095	9.5E-03	N/A	6.4E+02 NS	1.2E+00	NCPSRG	NO	DLBSL
	79-34-5	1,1,2,2-Tetrachloroethane	ND	ND	MG/KG		0/10	0.0043 - 0.0095	9.5E-03	N/A	5.6E-01 C	1.2E-03	NCPSRG	NO	DLBSL
	76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane(Freon-113)	ND	ND	MG/KG		0/10	0.0043 - 0.0095	9.5E-03	N/A	9.1E+02 NS	9.2E+03	NCPSRG	NO	DLBSL
	79-00-5	1,1,2-Trichloroethane	ND	ND	MG/KG		0/10	0.0043 - 0.0095	9.5E-03	N/A	1.1E+00 C	N/A		NO	DLBSL
	75-34-3	1,1-Dichloroethane	ND	ND	MG/KG		0/10	0.0043 - 0.0095	9.5E-03	N/A	3.3E+00 C	3.0E-02	NCPSRG	NO	DLBSL
	75-35-4	1,1-Dichloroethene	ND	ND	MG/KG		0/10	0.0043 - 0.0095	9.5E-03	N/A	2.4E+01 N	4.6E-02	NCPSRG	NO	DLBSL
	120-82-1	1,2,4-Trichlorobenzene	ND	ND	MG/KG		0/10	0.0043 - 0.0095	9.5E-03	N/A	6.2E+00 C**	2.2E+00	NCPSRG	NO	DLBSL
	96-12-8	1,2-Dibromo-3-chloropropane	ND	ND	MG/KG		0/10	0.0043 - 0.0095	9.5E-03	N/A	5.4E-03 C	2.5E-04	NCPSRG	YES	DLASL
	106-93-4	1,2-Dibromoethane	ND	ND	MG/KG		0/10	0.0043 - 0.0095	9.5E-03	N/A	3.4E-02 C	9.7E-05	NCPSRG	NO	DLBSL
	95-50-1	1,2-Dichlorobenzene	ND	ND	MG/KG		0/10	0.0043 - 0.0095	9.5E-03	N/A	1.9E+02 N	2.4E-01	NCPSRG	NO	DLBSL
	107-06-2	1,2-Dichloroethane	ND	ND	MG/KG		0/10	0.0043 - 0.0095	9.5E-03	N/A	4.3E-01 C	2.0E-03	NCPSRG	NO	DLBSL
	78-87-5	1,2-Dichloropropane	ND	ND	MG/KG		0/10	0.0043 - 0.0095	9.5E-03	N/A	8.9E-01 C*	3.3E-03	NCPSRG	NO	DLBSL
	541-73-1	1,3-Dichlorobenzene	ND	ND	MG/KG		0/10	0.0043 - 0.0095	9.5E-03	N/A	2.4E+00 C	N/A		NO	DLBSL
	106-46-7	1,4-Dichlorobenzene	ND	ND	MG/KG		0/10	0.0043 - 0.0095	9.5E-03	N/A	2.4E+00 C	7.0E-02	NCPSRG	NO	DLBSL
	78-93-3	2-Butanone	6.6E-03 J	2.7E-02 J	MG/KG	IR85-SS14D-00-01-09C	5/10	0.0086 - 0.019	2.7E-02	N/A	2.8E+03 N	1.6E+01	NCPSRG	NO	BSL
	591-78-6	2-Hexanone	ND	ND	MG/KG		0/10	0.0086 - 0.019	1.9E-02	N/A	2.1E+01 N	1.2E+00	NCPSRG	NO	DLBSL
	108-10-1	4-Methyl-2-pentanone	ND	ND	MG/KG		0/10	0.0086 - 0.019	1.9E-02	N/A	5.3E+02 N	N/A		NO	DLBSL
	67-64-1	Acetone	3.8E-02 J	1.3E+00 J	MG/KG	IR85-SS09-00-01-09C	12/12	0.0086 - 0.019	1.3E+00	N/A	6.1E+03 N	2.4E+01	NCPSRG	NO	BSL
	71-43-2	Benzene	ND	ND	MG/KG		0/10	0.0043 - 0.0095	9.5E-03	N/A	1.1E+00 C*	7.3E-02	NCPSRG	NO	DLBSL
	75-27-4	Bromodichloromethane	ND	ND	MG/KG		0/10	0.0043 - 0.0095	9.5E-03	N/A	2.7E-01 C	2.9E-03	NCPSRG	NO	DLBSL
	75-25-2	Bromoform	ND	ND	MG/KG		0/10	0.0043 - 0.0095	9.5E-03	N/A	6.1E+01 C*	1.9E-02	NCPSRG	NO	DLBSL
	74-83-9	Bromomethane	ND	ND	MG/KG		0/10	0.0086 - 0.019	1.9E-02	N/A	7.3E-01 N	N/A		NO	DLBSL
	75-15-0	Carbon disulfide	ND	ND	MG/KG		0/10	0.0043 - 0.0095	9.5E-03	N/A	8.2E+01 N	3.8E+00	NCPSRG	NO	DLBSL
	56-23-5	Carbon tetrachloride	ND	ND	MG/KG		0/10	0.0043 - 0.0095	9.5E-03	N/A	6.1E-01 C	2.0E-03	NCPSRG	NO	DLBSL
	108-90-7	Chlorobenzene	ND	ND	MG/KG		0/10	0.0043 - 0.0095	9.5E-03	N/A	2.9E+01 N	4.5E-01	NCPSRG	NO	DLBSL
	75-00-3	Chloroethane	ND	ND	MG/KG		0/10	0.0086 - 0.019	1.9E-02	N/A	1.5E+03 N	1.6E+01	NCPSRG	NO	DLBSL
	67-66-3	Chloroform	ND	ND	MG/KG		0/10	0.0043 - 0.0095	9.5E-03	N/A	2.9E-01 C	3.4E-01	NCPSRG	NO	DLBSL
	74-87-3	Chloromethane	ND	ND	MG/KG		0/10	0.0086 - 0.019	1.9E-02	N/A	1.2E+01 N	1.5E-02	NCPSRG	NO	DLBSL
	156-59-2	cis-1,2-Dichloroethene	ND	ND	MG/KG		0/10	0.0043 - 0.0095	9.5E-03	N/A	7.8E+01 N	3.6E-01	NCPSRG	NO	DLBSL
	10061-01-5	cis-1,3-Dichloropropene	ND	ND	MG/KG		0/10	0.0043 - 0.0095	9.5E-03	N/A	1.7E+00 C*	2.3E-03	NCPSRG	NO	DLBSL
	110-82-7	Cyclohexane	ND	ND	MG/KG		0/10	0.0043 - 0.0095	9.5E-03	N/A	1.2E+02 NS	N/A		NO	DLBSL
	124-48-1	Dibromochloromethane	ND	ND	MG/KG		0/10	0.0043 - 0.0095	9.5E-03	N/A	6.8E-01 C	1.9E-03	NCPSRG	NO	DLBSL
	75-71-8	Dichlorodifluoromethane (Freon-12)	ND	ND	MG/KG		0/10	0.0043 - 0.0095	9.5E-03	N/A	1.8E+01 N	2.9E+01	NCPSRG	NO	DLBSL
	100-41-4	Ethylbenzene	ND	ND	MG/KG		0/10	0.0043 - 0.0095	9.5E-03	N/A	5.4E+00 C	8.1E+00	NCPSRG	NO	DLBSL
	98-82-8	Isopropylbenzene	ND	ND	MG/KG		0/10	0.0043 - 0.0095	9.5E-03	N/A	2.1E+02 N	1.3E+00	NCPSRG	NO	DLBSL
	79-20-9	Methyl acetate	3.8E-03 J	2.0E-01 J	MG/KG	IR85-SS17-00-01-09C	10/10	0.0043 - 0.0095	2.0E-01	N/A	7.8E+03 N	N/A		NO	BSL

Exposure Point	CAS Number	Chemical	Minimum [1] Concentration Qualifier	Maximum [1] Concentration Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration [2] Used for Screening	Background [3] Value	Screening [4] Toxicity Value	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for [5] Contaminant Deletion or Selection
	108-87-2	Methylcyclohexane	ND	ND	MG/KG		0/10	0.0043 - 0.0095	9.5E-03	N/A	5.7E+01 N	N/A		NO	DLBSL
	75-09-2	Methylene chloride	1.4E-02 J	1.4E-02 J	MG/KG	IR85-SS17-00-01-09C	1/10	0.0086 - 0.019	1.4E-02	N/A	1.1E+01 C	2.3E-02	NCPSRG	NO	BSL
	1634-04-4	Methyl-tert-butyl ether (MTBE)	ND	ND	MG/KG		0/10	0.0043 - 0.0095	9.5E-03	N/A	4.3E+01 C	8.5E-02	NCPSRG	NO	DLBSL
	100-42-5	Styrene	ND	ND	MG/KG		0/10	0.0043 - 0.0095	9.5E-03	N/A	6.3E+02 N	9.2E-01	NCPSRG	NO	DLBSL
	127-18-4	Tetrachloroethene	ND	ND	MG/KG		0/10	0.0043 - 0.0095	9.5E-03	N/A	5.5E-01 C	5.0E-03	NCPSRG	NO	DLBSL
	108-88-3	Toluene	ND	ND	MG/KG		0/10	0.0043 - 0.0095	9.5E-03	N/A	5.0E+02 N	5.5E+00	NCPSRG	NO	DLBSL
	156-60-5	trans-1,2-Dichloroethene	ND	ND	MG/KG		0/10	0.0043 - 0.0095	9.5E-03	N/A	1.5E+01 N	5.1E-01	NCPSRG	NO	DLBSL
	10061-02-6	trans-1,3-Dichloropropene	ND	ND	MG/KG		0/10	0.0043 - 0.0095	9.5E-03	N/A	1.7E+00 C*	2.3E-03	NCPSRG	NO	DLBSL
	79-01-6	Trichloroethene	ND	ND	MG/KG		0/10	0.0043 - 0.0095	9.5E-03	N/A	2.8E+00 C	1.8E-02	NCPSRG	NO	DLBSL
	75-69-4	Trichlorofluoromethane(Freon-11)	ND	ND	MG/KG		0/10	0.0043 - 0.0095	9.5E-03	N/A	7.9E+01 N	2.4E+01	NCPSRG	NO	DLBSL
	75-01-4	Vinyl chloride	ND	ND	MG/KG		0/10	0.0086 - 0.019	1.9E-02	N/A	6.0E-02 C	1.9E-04	NCPSRG	NO	DLBSL
	1330-20-7	Xylene, total	ND	ND	MG/KG		0/10	0.0043 - 0.0095	9.5E-03	N/A	6.3E+01 N	6.0E+00	NCPSRG	NO	DLBSL
	92-52-4	1,1-Biphenyl	ND	ND	MG/KG		0/13	0.18 - 0.23	2.3E-01	N/A	2.1E+02 NS	4.3E+01	NCPSRG	NO	DLBSL
	108-60-1	2,2'-Oxybis(1-chloropropane)	ND	ND	MG/KG		0/13	0.18 - 0.23	2.3E-01	N/A	4.6E+00 C	N/A		NO	DLBSL
	95-95-4	2,4,5-Trichlorophenol	ND	ND	MG/KG		0/13	0.18 - 0.23	2.3E-01	N/A	6.1E+02 N	N/A		NO	DLBSL
	120-83-2	2,4-Dichlorophenol	ND	ND	MG/KG		0/13	0.18 - 0.23	2.3E-01	N/A	1.8E+01 N	N/A		NO	DLBSL
	105-67-9	2,4-Dimethylphenol	ND	ND	MG/KG		0/13	0.18 - 0.23	2.3E-01	N/A	1.2E+02 N	1.4E+00	NCPSRG	NO	DLBSL
	51-28-5	2,4-Dinitrophenol	ND	ND	MG/KG		0/13	0.18 - 0.23	2.3E-01	N/A	1.2E+01 N	N/A		NO	DLBSL
	121-14-2	2,4-Dinitrotoluene	ND	ND	MG/KG		0/13	0.18 - 0.23	2.3E-01	N/A	1.6E+00 C*	N/A		NO	DLBSL
	606-20-2	2,6-Dinitrotoluene	ND	ND	MG/KG		0/13	0.18 - 0.23	2.3E-01	N/A	6.1E+00 N	N/A		NO	DLBSL
	91-58-7	2-Chloronaphthalene	ND	ND	MG/KG		0/13	0.18 - 0.23	2.3E-01	N/A	1.8E+02 NS	N/A		NO	DLBSL
	95-57-8	2-Chlorophenol	ND	ND	MG/KG		0/13	0.18 - 0.23	2.3E-01	N/A	3.9E+01 N	4.1E-03	NCPSRG	NO	DLBSL
	91-57-6	2-Methylnaphthalene	ND	ND	MG/KG		0/13	0.18 - 0.23	2.3E-01	N/A	3.1E+01 N	1.6E+00	NCPSRG	NO	DLBSL
	95-48-7	2-Methylphenol	ND	ND	MG/KG		0/13	0.18 - 0.23	2.3E-01	N/A	3.1E+02 N	N/A		NO	DLBSL
	88-74-4	2-Nitroaniline	ND	ND	MG/KG		0/13	0.18 - 0.23	2.3E-01	N/A	6.1E+01 N	N/A		NO	DLBSL
	88-75-5	2-Nitrophenol	ND	ND	MG/KG		0/13	0.18 - 0.23	2.3E-01	N/A	3.9E+01 N	N/A		NO	DLBSL
	91-94-1	3,3'-Dichlorobenzidine	ND	ND	MG/KG		0/13	0.18 - 0.23	2.3E-01	N/A	1.1E+00 C	N/A		NO	DLBSL
	99-09-2	3-Nitroaniline	ND	ND	MG/KG		0/13	0.18 - 0.23	2.3E-01	N/A	6.1E+01 N	N/A		NO	DLBSL
	534-52-1	4,6-Dinitro-2-methylphenol	ND	ND	MG/KG		0/13	0.18 - 0.23	2.3E-01	N/A	4.9E-01 N	N/A		NO	DLBSL
	101-55-3	4-Bromophenyl-phenylether	ND	ND	MG/KG		0/13	0.18 - 0.23	2.3E-01	N/A	N/A	N/A		NO	NTX
	59-50-7	4-Chloro-3-methylphenol	ND	ND	MG/KG		0/13	0.18 - 0.23	2.3E-01	N/A	6.1E+02 N	N/A		NO	DLBSL
	106-47-8	4-Chloroaniline	ND	ND	MG/KG		0/13	0.18 - 0.23	2.3E-01	N/A	2.4E+00 C	N/A		NO	DLBSL
	7005-72-3	4-Chlorophenyl-phenylether	ND	ND	MG/KG		0/13	0.18 - 0.23	2.3E-01	N/A	3.1E+01 N	N/A		NO	DLBSL
	106-44-5	4-Methylphenol	ND	ND	MG/KG		0/13	0.18 - 0.23	2.3E-01	N/A	3.1E+01 N	4.0E-01	NCPSRG	NO	DLBSL
	100-01-6	4-Nitroaniline	ND	ND	MG/KG		0/13	0.18 - 0.23	2.3E-01	N/A	2.4E+01 C*	N/A		NO	DLBSL
	100-02-7	4-Nitrophenol	ND	ND	MG/KG		0/13	0.18 - 0.23	2.3E-01	N/A	4.8E+00 C*	N/A		NO	DLBSL
l	83-32-9	Acenaphthene	ND	ND	MG/KG		0/13	0.18 - 0.23	2.3E-01	N/A	3.4E+02 N	8.4E+00	NCPSRG	NO	DLBSL

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	208-96-8	Acenaphthylene	ND	ND	MG/KG		0/13	0.18 - 0.23	2.3E-01	N/A	3.4E+02 N	1.1E+01	NCPSRG	NO	DLBSL
	98-86-2	Acetophenone	ND	ND	MG/KG		0/13	0.18 - 0.23	2.3E-01	N/A	7.8E+02 N	N/A		NO	DLBSL
	120-12-7	Anthracene	ND	ND	MG/KG		0/13	0.18 - 0.23	2.3E-01	N/A	1.7E+03 N	6.6E+02	NCPSRG	NO	DLBSL
	1912-24-9	Atrazine	ND	ND	MG/KG		0/13	0.18 - 0.23	2.3E-01	N/A	2.1E+00 C	2.5E-02	NCPSRG	NO	DLBSL
	100-52-7	Benzaldehyde	ND	ND	MG/KG		0/13	0.18 - 0.23	2.3E-01	N/A	7.8E+02 N	N/A		NO	DLBSL
	56-55-3	Benzo(a)anthracene	ND	ND	MG/KG		0/13	0.036 - 0.047	4.7E-02	N/A	1.5E-01 C	1.8E-01	NCPSRG	NO	DLBSL
	50-32-8	Benzo(a)pyrene	ND	ND	MG/KG		0/13	0.036 - 0.047	4.7E-02	N/A	1.5E-02 C	5.9E-02	NCPSRG	YES	DLASL
	205-99-2	Benzo(b)fluoranthene	ND	ND	MG/KG		0/13	0.036 - 0.047	4.7E-02	N/A	1.5E-01 C	6.0E-01	NCPSRG	NO	DLBSL
	191-24-2	Benzo(g,h,i)perylene	ND	ND	MG/KG		0/13	0.18 - 0.23	2.3E-01	N/A	1.7E+02 N	3.6E+02	NCPSRG	NO	DLBSL
	207-08-9	Benzo(k)fluoranthene	ND	ND	MG/KG		0/13	0.18 - 0.23	2.3E-01	N/A	1.5E+00 C	5.9E+00	NCPSRG	NO	DLBSL
	111-91-1	bis(2-Chloroethoxy)methane	ND	ND	MG/KG		0/13	0.18 - 0.23	2.3E-01	N/A	1.8E+01 N	N/A		NO	DLBSL
	111-44-4	bis(2-Chloroethyl)ether	ND	ND	MG/KG		0/13	0.18 - 0.23	2.3E-01	N/A	2.1E-01 C	1.4E-04	NCPSRG	YES	DLASL
	117-81-7	bis(2-Ethylhexyl)phthalate	2.9E-02 J	1.4E-01 J	MG/KG	IR85-SS06-00-01-09C	3/13	0.18 - 0.23	1.4E-01	N/A	3.5E+01 C*	7.2E+00	NCPSRG	NO	BSL
	85-68-7	Butylbenzylphthalate	ND	ND	MG/KG		0/13	0.18 - 0.23	2.3E-01	N/A	2.6E+02 C*	1.5E+02	NCPSRG	NO	DLBSL
	105-60-2	Caprolactam	ND	ND	MG/KG		0/13	0.18 - 0.23	2.3E-01	N/A	3.1E+03 N	1.8E+01	NCPSRG	NO	DLBSL
	86-74-8	Carbazole	ND	ND	MG/KG		0/13	0.18 - 0.23	2.3E-01	N/A	N/A	N/A		NO	NTX
	218-01-9	Chrysene	ND	ND	MG/KG		0/13	0.18 - 0.23	2.3E-01	N/A	1.5E+01 C	1.8E+01	NCPSRG	NO	DLBSL
	53-70-3	Dibenz(a,h)anthracene	ND	ND	MG/KG		0/13	0.036 - 0.047	4.7E-02	N/A	1.5E-02 C	1.9E-01	NCPSRG	YES	DLASL
	132-64-9	Dibenzofuran	ND	ND	MG/KG		0/13	0.18 - 0.23	2.3E-01	N/A	7.8E+00 N	4.7E+00	NCPSRG	NO	DLBSL
	84-66-2	Diethylphthalate	ND	ND	MG/KG		0/13	0.18 - 0.23	2.3E-01	N/A	4.9E+03 N	3.7E+01	NCPSRG	NO	DLBSL
	131-11-3	Dimethyl phthalate	ND	ND	MG/KG		0/13	0.18 - 0.23	2.3E-01	N/A	N/A	N/A		NO	NTX
	84-74-2	Di-n-butylphthalate	ND	ND	MG/KG		0/13	0.18 - 0.23	2.3E-01	N/A	6.1E+02 N	1.9E+01	NCPSRG	NO	DLBSL
	117-84-0	Di-n-octylphthalate	ND	ND	MG/KG		0/13	0.18 - 0.23	2.3E-01	N/A	3.5E+01 C*	3.8E+01	NCPSRG	NO	DLBSL
	206-44-0	Fluoranthene	ND	ND	MG/KG		0/13	0.18 - 0.23	2.3E-01	N/A	2.3E+02 N	3.3E+02	NCPSRG	NO	DLBSL
	86-73-7	Fluorene	ND	ND	MG/KG		0/13	0.18 - 0.23	2.3E-01	N/A	2.3E+02 N	5.6E+01	NCPSRG	NO	DLBSL
	118-74-1	Hexachlorobenzene	ND	ND	MG/KG		0/13	0.18 - 0.23	2.3E-01	N/A	3.0E-01 C	2.6E-03	NCPSRG	NO	DLBSL
	87-68-3	Hexachlorobutadiene	ND	ND	MG/KG		0/13	0.18 - 0.23	2.3E-01	N/A	6.1E+00 C**	8.7E-03	NCPSRG	NO	DLBSL
	77-47-4	Hexachlorocyclopentadiene	ND	ND	MG/KG		0/12	0.18 - 0.23	2.3E-01	N/A	3.7E+01 N	N/A		NO	DLBSL
	67-72-1	Hexachloroethane	ND	ND	MG/KG		0/13	0.18 - 0.23	2.3E-01	N/A	6.1E+00 C**	N/A		NO	DLBSL
	193-39-5	Indeno(1,2,3-cd)pyrene	ND	ND	MG/KG		0/13	0.036 - 0.047	4.7E-02	N/A	1.5E-01 C	2.0E+00	NCPSRG	NO	DLBSL
	78-59-1	Isophorone	ND	ND	MG/KG		0/13	0.036 - 0.047	4.7E-02	N/A	5.1E+02 C*	2.0E-01	NCPSRG	NO	DLBSL
	91-20-3	Naphthalene	ND	ND	MG/KG		0/13	0.18 - 0.23	2.3E-01	N/A	3.6E+00 C*	2.1E-01	NCPSRG	NO	DLBSL
	621-64-7	n-Nitroso-di-n-propylamine	ND	ND	MG/KG		0/13	0.036 - 0.047	4.7E-02	N/A	6.9E-02 C	N/A		NO	DLBSL
	86-30-6	n-Nitrosodiphenylamine	ND	ND	MG/KG		0/13	0.18 - 0.23	2.3E-01	N/A	9.9E+01 C	N/A		NO	DLBSL
	98-95-3	Nitrobenzene	ND	ND	MG/KG		0/13	0.18 - 0.23	2.3E-01	N/A	4.8E+00 C*	N/A		NO	DLBSL
	87-86-5	Pentachlorophenol	ND	ND	MG/KG		0/13	0.18 - 0.23	2.3E-01	N/A	3.0E+00 C	3.1E-02	NCPSRG	NO	DLBSL
	85-01-8	Phenanthrene	ND	ND	MG/KG		0/13	0.18 - 0.23	2.3E-01	N/A	1.7E+03 N	5.7E+01	NCPSRG	NO	DLBSL

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	108-95-2	Phenol	ND	ND	MG/KG		0/13	0.18 - 0.23	2.3E-01	N/A	1.8E+03 N	2.3E-01	NCPSRG	NO	DLBSL
	129-00-0	Pyrene	ND	ND	MG/KG		0/13	0.18 - 0.23	2.3E-01	N/A	1.7E+02 N	2.2E+02	NCPSRG	NO	DLBSL
	72-54-8	4,4'-DDD	3.9E-04 J	3.1E-03 J	MG/KG	IR85-SS18-00-01-09C	5/13	0.0018 - 0.0023	3.1E-03	N/A	2.0E+00 C	2.4E-01	NCPSRG	NO	BSL
	72-55-9	4,4'-DDE	6.4E-04 J	2.9E-02 J	MG/KG	IR85-SS18-00-01-09C	12/13	0.0018 - 0.0023	2.9E-02	N/A	1.4E+00 C	N/A		NO	BSL
	50-29-3	4,4'-DDT	6.8E-04 J	2.5E-02 J	MG/KG	IR85-SS18-00-01-09C	11/13	0.0018 - 0.0023	2.5E-02	N/A	1.7E+00 C*	3.4E-01	NCPSRG	NO	BSL
	309-00-2	Aldrin	ND	ND	MG/KG		0/13	0.0018 - 0.0023	2.3E-03	N/A	2.9E-02 C*	N/A		NO	DLBSL
	319-84-6	alpha-BHC	ND	ND	MG/KG		0/13	0.0018 - 0.0023	2.3E-03	N/A	7.7E-02 C	1.2E-03	NCPSRG	NO	DLBSL
	5103-71-9	alpha-Chlordane	ND	ND	MG/KG		0/13	0.0018 - 0.0023	2.3E-03	N/A	1.6E+00 C*	6.8E-02	NCPSRG	NO	DLBSL
	12674-11-2	Aroclor-1016	ND	ND	MG/KG		0/13	0.017 - 0.023	2.3E-02	N/A	3.9E-01 N	N/A		NO	DLBSL
	11104-28-2	Aroclor-1221	ND	ND	MG/KG		0/13	0.017 - 0.023	2.3E-02	N/A	1.4E-01 C	N/A		NO	DLBSL
	11141-16-5	Aroclor-1232	ND	ND	MG/KG		0/13	0.017 - 0.023	2.3E-02	N/A	1.4E-01 C	N/A		NO	DLBSL
	53469-21-9	Aroclor-1242	ND	ND	MG/KG		0/13	0.017 - 0.023	2.3E-02	N/A	2.2E-01 C	N/A		NO	DLBSL
	12672-29-6	Aroclor-1248	ND	ND	MG/KG		0/13	0.017 - 0.023	2.3E-02	N/A	2.2E-01 C	N/A		NO	DLBSL
	11097-69-1	Aroclor-1254	4.0E-02 J	5.0E-02	MG/KG	IR85-SS17-00-01-09C	2/13	0.017 - 0.023	5.0E-02	N/A	1.1E-01 C**	N/A		NO	BSL
	11096-82-5	Aroclor-1260	ND	ND	MG/KG		0/13	0.017 - 0.023	2.3E-02	N/A	2.2E-01 C	N/A		NO	DLBSL
	319-85-7	beta-BHC	ND	ND	MG/KG		0/13	0.0018 - 0.0023	2.3E-03	N/A	2.7E-01 C	1.2E-03	NCPSRG	NO	DLBSL
	319-86-8	delta-BHC	ND	ND	MG/KG		0/13	0.0018 - 0.0023	2.3E-03	N/A	2.7E-01 C	1.2E-03	NCPSRG	NO	DLBSL
	60-57-1	Dieldrin	1.9E-03 J	1.9E-03 J	MG/KG	IR85-SS17-00-01-09C	1/13	0.0018 - 0.0023	1.9E-03	N/A	3.0E-02 C	8.1E-04	NCPSRG	NO	BSL
	959-98-8	Endosulfan I	ND	ND	MG/KG		0/13	0.0018 - 0.0023	2.3E-03	N/A	3.7E+01 N	5.6E+00	NCPSRG	NO	DLBSL
	33213-65-9	Endosulfan II	ND	ND	MG/KG		0/13	0.0018 - 0.0023	2.3E-03	N/A	3.7E+01 N	5.6E+00	NCPSRG	NO	DLBSL
	1031-07-8	Endosulfan sulfate	ND	ND	MG/KG		0/13	0.0018 - 0.0023	2.3E-03	N/A	3.7E+01 N	5.6E+00	NCPSRG	NO	DLBSL
	72-20-8	Endrin	ND	ND	MG/KG		0/13	0.0018 - 0.0023	2.3E-03	N/A	1.8E+00 N	8.1E-01	NCPSRG	NO	DLBSL
	7421-93-4	Endrin aldehyde	ND	ND	MG/KG		0/13	0.0018 - 0.0023	2.3E-03	N/A	1.8E+00 N	8.1E-01	NCPSRG	NO	DLBSL
	53494-70-5	Endrin ketone	ND	ND	MG/KG		0/13	0.0018 - 0.0023	2.3E-03	N/A	1.8E+00 N	8.1E-01	NCPSRG	NO	DLBSL
	58-89-9	gamma-BHC (Lindane)	ND	ND	MG/KG		0/13	0.0018 - 0.0023	2.3E-03	N/A	5.2E-01 C*	1.8E-03	NCPSRG	NO	DLBSL
	5103-74-2	gamma-Chlordane	8.8E-04 J	2.7E-03 J	MG/KG	IR85-SS18-00-01-09C	2/13	0.0018 - 0.0023	2.7E-03	N/A	1.6E+00 C*	6.8E-02	NCPSRG	NO	BSL
	76-44-8	Heptachlor	ND	ND	MG/KG		0/13	0.0018 - 0.0023	2.3E-03	N/A	1.1E-01 C	6.6E-03	NCPSRG	NO	DLBSL
	1024-57-3	Heptachlor epoxide	ND	ND	MG/KG		0/13	0.0018 - 0.0023	2.3E-03	N/A	5.3E-02 C*	8.2E-04	NCPSRG	NO	DLBSL
	72-43-5	Methoxychlor	ND	ND	MG/KG		0/13	0.0018 - 0.0023	2.3E-03	N/A	3.1E+01 N	2.2E+01	NCPSRG	NO	DLBSL
	8001-35-2	Toxaphene	ND	ND	MG/KG		0/13	0.036 - 0.047	4.7E-02	N/A	4.4E-01 C	4.6E-02	NCPSRG	NO	DLBSL
	7429-90-5	Aluminum	3.0E+03 J+	7.3E+03 J+	MG/KG	IR85-SS14D-00-01-09C	13/13	75.2 - 1930	7.3E+03	5.5E+03	7.7E+03 N	N/A		NO	BSL
	7440-36-0	Antimony	5.9E+00 J-	5.9E+00 J-	MG/KG	IR85-SS18-00-01-09C	1/13	1.5 - 38.5	5.9E+00	4.5E-01	3.1E+00 N	N/A		YES	ASL
	7440-38-2	Arsenic	5.7E-01 J	9.9E+00 J	MG/KG	IR85-SS17-00-01-09C	13/13	1.5 - 38.5	9.9E+00	6.3E-01	3.9E-01 C*	5.8E+00	NCPSRG	YES	ASL
	7440-39-3	Barium	5.9E+00	3.1E+01 J	MG/KG	IR85-SS17-00-01-09C	12/13	3.8 - 96.3	3.1E+01	1.5E+01	1.5E+03 N	5.8E+02	NCPSRG	NO	BSL
	7440-41-7	Beryllium	2.5E-02 J	9.6E-02 J	MG/KG	IR85-SS18-00-01-09C	9/13	0.15 - 3.9	9.6E-02	1.0E-01	1.6E+01 N	N/A		NO	BSL, BBK
	7440-43-9	Cadmium	5.9E-01	3.5E+00	MG/KG	IR85-SS18-00-01-09C	3/13	0.45 - 11.6	3.5E+00	3.3E-02	7.0E+00 N	3.0E+00	NCPSRG	NO	BSL
	7440-70-2	Calcium	4.1E+01 J	4.7E+02	MG/KG	IR85-SS16-00-01-09C	8/13	75.2 - 1930	4.7E+02	6.4E+03	N/A	N/A	l	NO	NUT, BBK

Table 2 11

OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN

Camp Johnson Site 85 MCB Camp Lejeune, North Carolina

Scenario Timeframe: Current/Future Medium: Surface Soil Exposure Medium: Surface Soil

Exposure Point	CAS Number	Chemical	Minimum [1] Concentration Qualifier	Maximum [1] Concentration Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration [2] Used for Screening		Screening [4] Toxicity Value	Potential ARAR/TBC Value			Rationale for [5] Contaminant Deletion or Selection
	7440-47-3	Chromium	2.7E+00	8.5E+00 J	MG/KG	IR85-SS18-00-01-09C	12/13	1.5 - 38.5	8.5E+00	6.1E+00	2.9E-01 C	3.8E+00	NCPSRG	YES	ASL
	7440-48-4	Cobalt	1.1E-01 J	2.4E+00 J	MG/KG	IR85-SS17-00-01-09C	11/13	0.38 - 9.6	2.4E+00	2.9E-01	2.3E+00 N	N/A		YES	ASL
	7440-50-8	Copper	7.6E-01 J	2.1E+02	MG/KG	IR85-SS18-00-01-09C	13/13	1.5 - 38.5	2.1E+02	4.8E+00	3.1E+02 N	7.0E+02	NCPSRG	NO	BSL
	7439-89-6	Iron	1.7E+03	1.2E+04	MG/KG	IR85-SS18-00-01-09C	13/13	11.3 - 289	1.2E+04	3.2E+03	5.5E+03 N	1.5E+02	NCPSRG	YES	ASL
	7439-92-1	Lead	4.8E+00	6.1E+02	MG/KG	IR85-SS18-00-01-09C	13/13	1.5 - 38.5	6.1E+02	1.2E+01	4.0E+02 NL	2.7E+02	NCPSRG	YES	ASL
	7439-95-4	Magnesium	8.1E+01 J	1.8E+02	MG/KG	IR85-SS14D-00-01-09C	13/13	18.8 - 482	1.8E+02	2.4E+02	N/A	N/A		NO	NUT, BBK
	7439-96-5	Manganese	5.9E+00	1.1E+04	MG/KG	IR85-SS17-00-01-09C	13/13	0.38 - 9.6	1.1E+04	1.4E+01	1.8E+02 N	6.5E+01	NCPSRG	YES	ASL
	7439-97-6	Mercury	3.7E-02	8.8E+00	MG/KG	IR85-SS18-00-01-09C	11/13	0.032 - 0.43	8.8E+00	8.1E-02	2.3E+00 N	1.0E+00	NCPSRG	YES	ASL
	7440-02-0	Nickel	9.1E-01	8.7E+00 J	MG/KG	IR85-SS17-00-01-09C	13/13	0.75 - 19.3	8.7E+00	1.2E+00	1.5E+02 N	1.3E+02	NCPSRG	NO	BSL
	7440-09-7	Potassium	7.2E+01 J	1.4E+02	MG/KG	IR85-SS06-00-01-09C	9/13	75.2 - 1930	1.4E+02	1.2E+02	N/A	N/A		NO	NUT
	7782-49-2	Selenium	4.5E-01 J	4.5E-01 J	MG/KG	IR85-SS14-00-01-09C	1/13	1.5 - 38.5	4.5E-01	5.6E-01	3.9E+01 N	2.1E+00	NCPSRG	NO	BSL, BBK
	7440-22-4	Silver	8.3E-02 J	2.9E-01 J	MG/KG	IR85-SS16-00-01-09C	5/13	1.5 - 38.5	2.9E-01	1.4E-01	3.9E+01 N	3.4E+00	NCPSRG	NO	BSL
	7440-23-5	Sodium	3.2E+00 J	7.5E+00 J	MG/KG	IR85-SS09D-00-01-09C	7/13	188 - 4820	7.5E+00	8.1E+01	N/A	N/A		NO	NUT, BBK
	7440-28-0	Thallium	4.4E-01 J	1.9E+01 J	MG/KG	IR85-SS17-00-01-09C	2/13	2.3 - 57.8	1.9E+01	3.6E-01	N/A	N/A		NO	NTX
	7440-62-2	Vanadium	5.3E+00 J	1.0E+01 J	MG/KG	IR85-SS14D-00-01-09C	12/13	3.8 - 96.3	1.0E+01	8.9E+00	3.9E+01 N	N/A		NO	BSL
	7440-66-6	Zinc	4.2E+00	5.6E+03	MG/KG	IR85-SS17-00-01-09C	11/13	3.8 - 96.3	5.6E+03	1.1E+01	2.3E+03 N	1.2E+03	NCPSRG	YES	ASL

- [1] Minimum/Maximum detected concentrations.
- [2] Maximum concentration is used for screening. If the chemical was not detected, the maximum detection limit is used for screening.
- [3] Background values are two times the arithmetic mean basewide background surface soil concentrations.

Background values are from Final Base Background Soil Study Report, Marine Corps Base Camp Lejeune, North Carolina,

Baker Environmental, April 25, 2001.

[4] Oak Ridge National Laboratory (ORNL). May 17, 2010. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites.

http://epa-prgs.ornl.gov/chemicals/index.shtml. Adjusted (noncarcinogenic RSLs adjusted by dividing by 10) residential soil RSLs.

RSL value for 1,4-Dichlorobenzene used as a surrogate for 1,3-Dichlorobenzene

RSL value for RSL value for p-cresol used as surrogate for 3- and 4-methylphenol.

RSL value for RSL value for methoxychlor used as surrogate for 4-chlorophenyl-phenylether.

RSL value for RSL value for nitrobenzene used as surrogate for 4-nitrophenol.

RSL value for acenaphthene used as surrogate for acenaphthylene.

RSL value for pyrene used as surrogate for benzo(g,h,i)perylene.

RSL value for anthracene used as surrogate for phenanthrene.

RSL value for technical chlordane used as surrogate for alpha-chlordane.

RSL value for technical-HCH used as surrogate for delta-BHC.

RSL value for technical chlordane used as surrogate for gamma-chlordane.

RSL value for 1,3-dichloropropene used as a surrogate for cis-1,3-dichloropropene and trans-1,3-dichloropropene.

RSL value for endosulfan used as surrogate for endosulfan I, endosulfan II, and endosulfan sulfate.

RSL value for endrin used as surrogate for endrin aldehyde and endrin ketone.

RSL value for 2-chlorophenol used as surrogate for 4-chloro-3-methylphenol and 2-nitrophenol.

RSL value for Mercury (inorganic salts) used for mercury.

Rationale Codes

Selection Reason: Above Screening Levels (ASL)

Detection Limit Above Screening Level (DLASL), not quantitatively evaluated in HHRA

Deletion Reason: No Toxicity Information (NTX) Essential Nutrient (NUT)

> Below Screening Level (BSL) Below Background (BBK)

Detection Limit Below Screening Level (DLBSL)

COPC = Chemical of Potential Concern

ARAR/TBC = Applicable or Relevant and Appropriate Requirement/

To Be Considered

NCPSRG = North Carolina Preliminary Soil Remediation Goal, January, 2010

J = Estimated Value

J- = Analyte present, value may be biased low, actual value may be higher

J+ = Analyte present, value may be biased high, actual value may be lower

C = Carcinogenic

C* = N screening level < 100x C screening level, therefore

N screening value/10 used as screening level

C** = N screening level < 10x C screening level, therefore

N screening value/10 used as screening level

MG/KG = Milligrams per kilogram

N = Noncarcinogenic

NA = Not available/not applicable

ND = Non-detect

NL = Noncarcinogenic lead residential soil RSL not adjusted by dividing by 10.

NS = Concentration exceeds Csat (soil saturation concentration),

Csat used as screening level.

TABLE 2.11a

Risk Ratio Screening for Surface Soil, Maximum Detected Concentration Camp Johnson Site 85 MCB Camp Lejeune, North Carolina

Analyte	Detection Frequency	Maximum Detected Concentration (Qualifier)	Sample Location of Maximum Detected Concentration	Residential Soil RSL	Acceptable Risk Level	Corresponding Hazard Index ^a	Corresponding Cancer Risk ^b	Target Organ
Metals (mg/kg)								
Antimony	1 / 13	5.9E+00 J-	IR85-SS18-00-01-09C	3.1E+01	1	0.2	NA	Longevity, Blood
Arsenic	13 / 13	9.9E+00 J	IR85-SS17-00-01-09C	3.9E-01	1E-06	NA	3E-05	NA
Chromium	12 / 13	8.5E+00 J	IR85-SS18-00-01-09C	2.9E-01	1E-06	NA	3E-05	NA
Cobalt	11 / 13	2.4E+00 J	IR85-SS17-00-01-09C	2.3E+01	1	0.1	NA	Thyroid
Iron	13 / 13	1.2E+04	IR85-SS18-00-01-09C	5.5E+04	1	0.2	NA	Gastrointestinal
Lead	13 / 13	6.1E+02	IR85-SS18-00-01-09C	NA		NA	NA	NA
Manganese	13 / 13	1.1E+04	IR85-SS17-00-01-09C	1.8E+03	1	5.9	NA	Central Nervous System
Mercury	11 / 13	8.8E+00	IR85-SS18-00-01-09C	2.3E+01	1	0.4	NA	Autoimmune
Zinc	11 / 13	5.6E+03	IR85-SS17-00-01-09C	2.3E+04	1	0.2	NA	Blood
Cumulative Corresponding Hazard Index ^c	•	•		•	•	7.1		
Cumulative Corresponding Cancer Risk ^a							5E-05	

Notes:

^a Corresponding Hazard Index equals maximum detected concentration divided by the RSL divided by the acceptable risk level

Constituent selected as COPC if it contributes to an overall Hazard Index by target organ greater than 0.5 or Cumulative Corresponding Cancer Risk greater than 5E-05, otherwise, constituent not selected as COPC. Constituents selected as COPCs are indicated by shading.

COPC = Chemical of Potential Concern

HI = Hazard Index

J = Estimated Value

J- = Analyte present, value may be biased low, actual value may be higher

mg/kg = milligrams per kilogram

NA = Not available/not applicable

	5E-05	
To	tal Autoimmune HI =	0.4
	Total Blood HI =	0.4
Total	Gastrointestinal HI =	0.2
	Total Longevity HI =	0.2
Total N	Nervous System HI =	5.9
	Total Thyroid HI =	0.1

^b Corresponding Cancer Risk equals maximum detected concentration divided by the RSL divided by the acceptable risk level.

^c Cumulative Corresponding Hazard Index equals sum of Corresponding Hazard Indices for each constituent.

^d Cumulative Corresponding Cancer Risk equals sum of Corresponding Cancer Risks for each constituent.

TABLE 2.11b

Risk Ratio Screening for Surface Soil, 95% UCL Concentration Camp Johnson Site 85 MCB Camp Lejeune, North Carolina

Analyte	Detection Frequency	95% UC	CL	95% UCL Rationale	Residential Soil RSL	Acceptable Risk Level	Corresponding Hazard Index ^a	Corresponding Cancer Risk ^b	Target Organ
Metals (mg/kg)									
Lead	13 / 13	7.2E+01	6	Mean	NA	NA	NA	NA	
Manganese	13 / 13	9.1E+03	4	99% Cheb-m	1.8E+03	1	5.0	NA	Central Nervous System
Cumulative Corresponding Hazard Index ^c							5.0		
Cumulative Corresponding Cancer Risk ^a								NA	
							Total Central N	Veryous System HI =	5.0

Notes:

Constituent selected as COPC if it contributes to an overall Hazard Index by target organ greater than 0.5 or Cumulative Corresponding Cancer Risk greater than 5E-05, otherwise, constituent not selected as COPC.

Constituents selected as COPCs are indicated by shading.

COPC = Chemical of Potential Concern mg/kg = milligrams per kilogram HI = Hazard Index NA = Not available/not applicable.

ProUCL, Version 4.00.05 used to determine distribution of data and calculate 95% UCL, following recommendations in users guide (USEPA. May 2010. ProUCL, Version 4.0. Prepared by Lockheed Martin Environmental Services). Options: 99% Chebshev (Mean, Sd) UCL (99% Cheb-m)

Upper Confidence Limit (UCL) Rationale:

- (1) Shapiro-Wilk W Test/Lilliefors test indicates data are log-normally distributed.
- (2) Shapiro-Wilk W Test/Lilliefors indicates data are normally distributed.
- (3) Test indicates data are gamma distributed.
- (4) Distribution tests are inconclusive
- (5) Max value used because 95% UCL greater than max.
- (6) Lead evaluated using arithmetic mean concentration in lead models, therefore, arithmetic mean concentration presented here.

^a Corresponding Hazard Index equals 95% UCL concentration divided by the RSL divided by the acceptable risk level.

^b Corresponding Cancer Risk equals 95% UCL concentration divided by the RSL divided by the acceptable risk level

^c Cumulative Corresponding Hazard Index equals sum of Corresponding Hazard Indices for each constituent.

^d Cumulative Corresponding Cancer Risk equals sum of Corresponding Cancer Risks for each constituent.

Exposure Point	CAS Number	Chemical	Minimum [1] Concentration Qualifier	Maximum [1] Concentration Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration [2] Used for Screening	Background [3] Value	Screening [4] Toxicity Value	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for [5 Contaminant Deletion or Selection
Site 85	71-55-6	1.1.1-Trichloroethane	ND	ND	MG/KG		0/19	0.0016 - 0.0095	9.5E-03	N/A	6.4E+02 NS	1.2E+00	NCPSRG	NO	DLBSL
OILC 00	79-34-5	1.1.2.2-Tetrachloroethane	ND	ND	MG/KG		0/19	0.0016 - 0.0095	9.5E-03	N/A	5.6E-01 C	1.2E-03	NCPSRG	NO	DLBSL
	76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane(Freon-113)	ND	ND	MG/KG		0/19	0.0016 - 0.0095	9.5E-03	N/A	9.1E+02 NS	9.2E+03	NCPSRG	NO	DLBSL
	79-00-5	1.1.2-Trichloroethane	ND	ND	MG/KG		0/19	0.0016 - 0.0095	9.5E-03	N/A	1.1E+00 C	N/A	THOI ONG	NO	DLBSL
	75-34-3	1,1-Dichloroethane	ND	ND	MG/KG		0/19	0.0016 - 0.0095	9.5E-03	N/A	3.3E+00 C	3.0E-02	NCPSRG	NO	DLBSL
	75-35-4	1.1-Dichloroethene	ND	ND	MG/KG		0/19	0.0016 - 0.0095	9.5E-03	N/A	2.4E+01 N	4.6E-02	NCPSRG	NO	DLBSL
	120-82-1	1.2.4-Trichlorobenzene	2.0E-03 J	2.7E-03 J	MG/KG	IR85-SB11-2-7-09C	5/19	0.0016 - 0.0095	2.7E-03	N/A	6.2E+00 C**	2.2E+00	NCPSRG	NO	BSL
	96-12-8	1,2-Dibromo-3-chloropropane	2.4E-03 J	2.4E-03 J	MG/KG	IR85-SB11-2-7-09C	1/19	0.0016 - 0.0095	2.4E-03	N/A	5.4E-03 C	2.5E-04	NCPSRG	NO	BSL
	106-93-4	1,2-Dibromoethane	ND	ND	MG/KG		0/19	0.0016 - 0.0095	9.5E-03	N/A	3.4E-02 C	9.7E-05	NCPSRG	NO	DLBSL
	95-50-1	1,2-Dichlorobenzene	ND	ND	MG/KG		0/19	0.0016 - 0.0095	9.5E-03	N/A	1.9E+02 N	2.4E-01	NCPSRG	NO	DLBSL
	107-06-2	1,2-Dichloroethane	ND	ND	MG/KG		0/19	0.0016 - 0.0095	9.5E-03	N/A	4.3E-01 C	2.0E-03	NCPSRG	NO	DLBSL
	78-87-5	1,2-Dichloropropane	ND	ND	MG/KG		0/19	0.0016 - 0.0095	9.5E-03	N/A	8.9E-01 C*	3.3E-03	NCPSRG	NO	DLBSL
	541-73-1	1,3-Dichlorobenzene	1.2E-03 J	1.4E-03 J	MG/KG	308-2-7-09C : IR85-SB11-2	3/19	0.0016 - 0.0095	1.4E-03	N/A	2.4E+00 C	N/A		NO	BSL
	106-46-7	1,4-Dichlorobenzene	ND	ND	MG/KG		0/19	0.0016 - 0.0095	9.5E-03	N/A	2.4E+00 C	7.0E-02	NCPSRG	NO	DLBSL
	78-93-3	2-Butanone	1.5E-03 J	2.7E-02 J	MG/KG	IR85-SS14D-00-01-09C	13/20	0.0029 - 0.019	2.7E-02	N/A	2.8E+03 N	1.6E+01	NCPSRG	NO	BSL
	591-78-6	2-Hexanone	ND	ND	MG/KG		0/19	0.0031 - 0.019	1.9E-02	N/A	2.1E+01 N	1.2E+00	NCPSRG	NO	DLBSL
	108-10-1	4-Methyl-2-pentanone	1.5E-03 J	1.5E-03 J	MG/KG	IR85-SB11-2-7-09C	1/19	0.0031 - 0.019	1.5E-03	N/A	5.3E+02 N	N/A		NO	BSL
	67-64-1	Acetone	3.0E-02 J	1.3E+00 J	MG/KG	IR85-SS09-00-01-09C	20/22	0.0029 - 0.019	1.3E+00	N/A	6.1E+03 N	2.4E+01	NCPSRG	NO	BSL
	71-43-2	Benzene	ND	ND	MG/KG		0/19	0.0016 - 0.0095	9.5E-03	N/A	1.1E+00 C*	7.3E-02	NCPSRG	NO	DLBSL
	75-27-4	Bromodichloromethane	ND	ND	MG/KG		0/19	0.0016 - 0.0095	9.5E-03	N/A	2.7E-01 C	2.9E-03	NCPSRG	NO	DLBSL
	75-25-2	Bromoform	ND	ND	MG/KG		0/19	0.0016 - 0.0095	9.5E-03	N/A	6.1E+01 C*	1.9E-02	NCPSRG	NO	DLBSL
	74-83-9	Bromomethane	ND	ND	MG/KG		0/12	0.0035 - 0.019	1.9E-02	N/A	7.3E-01 N	N/A		NO	DLBSL
	75-15-0	Carbon disulfide	ND	ND	MG/KG		0/19	0.0016 - 0.0095	9.5E-03	N/A	8.2E+01 N	3.8E+00	NCPSRG	NO	DLBSL
	56-23-5	Carbon tetrachloride	ND	ND	MG/KG		0/19	0.0016 - 0.0095	9.5E-03	N/A	6.1E-01 C	2.0E-03	NCPSRG	NO	DLBSL
	108-90-7	Chlorobenzene	ND	ND	MG/KG		0/19	0.0016 - 0.0095	9.5E-03	N/A	2.9E+01 N	4.5E-01	NCPSRG	NO	DLBSL
	75-00-3	Chloroethane	ND	ND	MG/KG		0/18	0.0031 - 0.019	1.9E-02	N/A	1.5E+03 N	1.6E+01	NCPSRG	NO	DLBSL
	67-66-3	Chloroform	1.0E-03 J	1.0E-03 J	MG/KG	IR85-SB11-2-7-09C	1/19	0.0016 - 0.0095	1.0E-03	N/A	2.9E-01 C	3.4E-01	NCPSRG	NO	BSL
	74-87-3	Chloromethane	ND	ND	MG/KG		0/19	0.0031 - 0.019	1.9E-02	N/A	1.2E+01 N	1.5E-02	NCPSRG	NO	DLBSL
	156-59-2	cis-1,2-Dichloroethene	ND	ND	MG/KG		0/19	0.0016 - 0.0095	9.5E-03	N/A	7.8E+01 N	3.6E-01	NCPSRG	NO	DLBSL
	10061-01-5	cis-1,3-Dichloropropene	ND	ND	MG/KG		0/19	0.0016 - 0.0095	9.5E-03	N/A	1.7E+00 C*	2.3E-03	NCPSRG	NO	DLBSL
	110-82-7	Cyclohexane	ND	ND	MG/KG		0/19	0.0016 - 0.0095	9.5E-03	N/A	1.2E+02 NS	N/A		NO	DLBSL
	124-48-1	Dibromochloromethane	ND	ND	MG/KG		0/19	0.0016 - 0.0095	9.5E-03	N/A	6.8E-01 C	1.9E-03	NCPSRG	NO	DLBSL
	75-71-8	Dichlorodifluoromethane (Freon-12)	ND	ND	MG/KG		0/19	0.0016 - 0.0095	9.5E-03	N/A	1.8E+01 N	2.9E+01	NCPSRG	NO	DLBSL
	100-41-4	Ethylbenzene	ND	ND	MG/KG		0/19	0.0016 - 0.0095	9.5E-03	N/A	5.4E+00 C	8.1E+00	NCPSRG	NO	DLBSL
	98-82-8	Isopropylbenzene	2.0E-03 J	2.7E-03 J	MG/KG	IR85-SB08-2-7-09C	5/19	0.0016 - 0.0095	2.7E-03	N/A	2.1E+02 N	1.3E+00	NCPSRG	NO	BSL
	79-20-9	Methyl acetate	1.2E-03 J	2.0E-01 J	MG/KG	IR85-SS17-00-01-09C	16/20	0.0014 - 0.0095	2.0E-01	N/A	7.8E+03 N	N/A	l	NO	BSL

Exposure Point	CAS Number	Chemical	Minimum [1] Concentration Qualifier	Maximum [1] Concentration Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration [2] Used for Screening	Background [3] Value	Screening [4] Toxicity Value	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for [5] Contaminant Deletion or Selection
	108-87-2	Methylcyclohexane	ND	ND	MG/KG		0/19	0.0016 - 0.0095	9.5E-03	N/A	5.7E+01 N	N/A		NO	DLBSL
	75-09-2	Methylene chloride	6.2E-04 J	1.4E-02 J	MG/KG	IR85-SS17-00-01-09C	9/20	0.0029 - 0.019	1.4E-02	N/A	1.1E+01 C	2.3E-02	NCPSRG	NO	BSL
	1634-04-4	Methyl-tert-butyl ether (MTBE)	ND	ND	MG/KG		0/19	0.0016 - 0.0095	9.5E-03	N/A	4.3E+01 C	8.5E-02	NCPSRG	NO	DLBSL
	100-42-5	Styrene	2.1E-03 J	2.8E-03 J	MG/KG	IR85-SB08-2-7-09C	6/19	0.0016 - 0.0095	2.8E-03	N/A	6.3E+02 N	9.2E-01	NCPSRG	NO	BSL
	127-18-4	Tetrachloroethene	1.3E-03 J	1.6E-03 J	MG/KG	308-2-7-09C : IR85-SB11-2	4/19	0.0016 - 0.0095	1.6E-03	N/A	5.5E-01 C	5.0E-03	NCPSRG	NO	BSL
	108-88-3	Toluene	6.4E-04 J	6.4E-04 J	MG/KG	IR85-SB17-6-7-09C	1/19	0.0016 - 0.0095	6.4E-04	N/A	5.0E+02 N	5.5E+00	NCPSRG	NO	BSL
	156-60-5	trans-1,2-Dichloroethene	ND	ND	MG/KG		0/19	0.0016 - 0.0095	9.5E-03	N/A	1.5E+01 N	5.1E-01	NCPSRG	NO	DLBSL
	10061-02-6	trans-1,3-Dichloropropene	ND	ND	MG/KG		0/19	0.0016 - 0.0095	9.5E-03	N/A	1.7E+00 C*	2.3E-03	NCPSRG	NO	DLBSL
	79-01-6	Trichloroethene	ND	ND	MG/KG		0/19	0.0016 - 0.0095	9.5E-03	N/A	2.8E+00 C	1.8E-02	NCPSRG	NO	DLBSL
	75-69-4	Trichlorofluoromethane(Freon-11)	ND	ND	MG/KG		0/19	0.0016 - 0.0095	9.5E-03	N/A	7.9E+01 N	2.4E+01	NCPSRG	NO	DLBSL
	75-01-4	Vinyl chloride	ND	ND	MG/KG		0/13	0.0033 - 0.019	1.9E-02	N/A	6.0E-02 C	1.9E-04	NCPSRG	NO	DLBSL
	1330-20-7	Xylene, total	ND	ND	MG/KG		0/19	0.0016 - 0.0095	9.5E-03	N/A	6.3E+01 N	6.0E+00	NCPSRG	NO	DLBSL
	92-52-4	1,1-Biphenyl	ND	ND	MG/KG		0/23	0.18 - 0.23	2.3E-01	N/A	2.1E+02 NS	4.3E+01	NCPSRG	NO	DLBSL
	108-60-1	2,2'-Oxybis(1-chloropropane)	ND	ND	MG/KG		0/23	0.18 - 0.23	2.3E-01	N/A	4.6E+00 C	N/A		NO	DLBSL
	95-95-4	2,4,5-Trichlorophenol	ND	ND	MG/KG		0/23	0.18 - 0.23	2.3E-01	N/A	6.1E+02 N	N/A		NO	DLBSL
	120-83-2	2,4-Dichlorophenol	ND	ND	MG/KG		0/23	0.18 - 0.23	2.3E-01	N/A	1.8E+01 N	N/A		NO	DLBSL
	105-67-9	2,4-Dimethylphenol	ND	ND	MG/KG		0/23	0.18 - 0.23	2.3E-01	N/A	1.2E+02 N	1.4E+00	NCPSRG	NO	DLBSL
	51-28-5	2,4-Dinitrophenol	ND	ND	MG/KG		0/23	0.18 - 0.23	2.3E-01	N/A	1.2E+01 N	N/A		NO	DLBSL
	121-14-2	2,4-Dinitrotoluene	ND	ND	MG/KG		0/23	0.18 - 0.23	2.3E-01	N/A	1.6E+00 C*	N/A		NO	DLBSL
	606-20-2	2,6-Dinitrotoluene	ND	ND	MG/KG		0/23	0.18 - 0.23	2.3E-01	N/A	6.1E+00 N	N/A		NO	DLBSL
	91-58-7	2-Chloronaphthalene	ND	ND	MG/KG		0/23	0.18 - 0.23	2.3E-01	N/A	1.8E+02 NS	N/A		NO	DLBSL
	95-57-8	2-Chlorophenol	ND	ND	MG/KG		0/23	0.18 - 0.23	2.3E-01	N/A	3.9E+01 N	4.1E-03	NCPSRG	NO	DLBSL
	91-57-6	2-Methylnaphthalene	ND	ND	MG/KG		0/23	0.18 - 0.23	2.3E-01	N/A	3.1E+01 N	1.6E+00	NCPSRG	NO	DLBSL
	95-48-7	2-Methylphenol	ND	ND	MG/KG		0/23	0.18 - 0.23	2.3E-01	N/A	3.1E+02 N	N/A		NO	DLBSL
	88-74-4	2-Nitroaniline	ND	ND	MG/KG		0/23	0.18 - 0.23	2.3E-01	N/A	6.1E+01 N	N/A		NO	DLBSL
	88-75-5	2-Nitrophenol	ND	ND	MG/KG		0/23	0.18 - 0.23	2.3E-01	N/A	3.9E+01 N	N/A		NO	DLBSL
	91-94-1	3,3'-Dichlorobenzidine	ND	ND	MG/KG		0/23	0.18 - 0.23	2.3E-01	N/A	1.1E+00 C	N/A		NO	DLBSL
	99-09-2	3-Nitroaniline	ND	ND	MG/KG		0/23	0.18 - 0.23	2.3E-01	N/A	6.1E+01 N	N/A		NO	DLBSL
	534-52-1	4,6-Dinitro-2-methylphenol	ND	ND	MG/KG		0/23	0.18 - 0.23	2.3E-01	N/A	4.9E-01 N	N/A		NO	DLBSL
	101-55-3	4-Bromophenyl-phenylether	ND	ND	MG/KG		0/23	0.18 - 0.23	2.3E-01	N/A	N/A	N/A		NO	NTX
	59-50-7	4-Chloro-3-methylphenol	ND	ND	MG/KG		0/23	0.18 - 0.23	2.3E-01	N/A	6.1E+02 N	N/A		NO	DLBSL
	106-47-8	4-Chloroaniline	ND	ND	MG/KG		0/23	0.18 - 0.23	2.3E-01	N/A	2.4E+00 C	N/A		NO	DLBSL
	7005-72-3	4-Chlorophenyl-phenylether	ND	ND	MG/KG		0/23	0.18 - 0.23	2.3E-01	N/A	3.1E+01 N	N/A		NO	DLBSL
	106-44-5	4-Methylphenol	ND	ND	MG/KG		0/23	0.18 - 0.23	2.3E-01	N/A	3.1E+01 N	4.0E-01	NCPSRG	NO	DLBSL
	100-01-6	4-Nitroaniline	ND	ND	MG/KG		0/23	0.18 - 0.23	2.3E-01	N/A	2.4E+01 C*	N/A		NO	DLBSL
	100-02-7	4-Nitrophenol	ND	ND	MG/KG		0/23	0.18 - 0.23	2.3E-01	N/A	4.8E+00 C*	N/A		NO	DLBSL
	83-32-9	Acenaphthene	ND	ND	MG/KG		0/23	0.18 - 0.23	2.3E-01	N/A	3.4E+02 N	8.4E+00	NCPSRG	NO	DLBSL

Exposure Point	CAS Number	Chemical	Minimum [1] Concentration Qualifier	Maximum [1] Concentration Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration [2 Used for Screening	Background [3 Value	Screening [4] Toxicity Value	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for [5] Contaminant Deletion or Selection
	208-96-8	Acenaphthylene	ND	ND	MG/KG		0/23	0.18 - 0.23	2.3E-01	N/A	3.4E+02 N	1.1E+01	NCPSRG	NO	DLBSL
	98-86-2	Acetophenone	ND	ND	MG/KG		0/23	0.18 - 0.23	2.3E-01	N/A	7.8E+02 N	N/A		NO	DLBSL
	120-12-7	Anthracene	ND	ND	MG/KG		0/23	0.18 - 0.23	2.3E-01	N/A	1.7E+03 N	6.6E+02	NCPSRG	NO	DLBSL
	1912-24-9	Atrazine	ND	ND	MG/KG		0/23	0.18 - 0.23	2.3E-01	N/A	2.1E+00 C	2.5E-02	NCPSRG	NO	DLBSL
	100-52-7	Benzaldehyde	ND	ND	MG/KG		0/13	0.18 - 0.23	2.3E-01	N/A	7.8E+02 N	N/A		NO	DLBSL
	56-55-3	Benzo(a)anthracene	ND	ND	MG/KG		0/23	0.036 - 0.047	4.7E-02	N/A	1.5E-01 C	1.8E-01	NCPSRG	NO	DLBSL
	50-32-8	Benzo(a)pyrene	ND	ND	MG/KG		0/23	0.036 - 0.047	4.7E-02	N/A	1.5E-02 C	5.9E-02	NCPSRG	YES	DLASL
	205-99-2	Benzo(b)fluoranthene	ND	ND	MG/KG		0/23	0.036 - 0.047	4.7E-02	N/A	1.5E-01 C	6.0E-01	NCPSRG	NO	DLBSL
	191-24-2	Benzo(g,h,i)perylene	ND	ND	MG/KG		0/23	0.18 - 0.23	2.3E-01	N/A	1.7E+02 N	3.6E+02	NCPSRG	NO	DLBSL
	207-08-9	Benzo(k)fluoranthene	ND	ND	MG/KG		0/23	0.18 - 0.23	2.3E-01	N/A	1.5E+00 C	5.9E+00	NCPSRG	NO	DLBSL
	111-91-1	bis(2-Chloroethoxy)methane	ND	ND	MG/KG		0/23	0.18 - 0.23	2.3E-01	N/A	1.8E+01 N	N/A		NO	DLBSL
	111-44-4	bis(2-Chloroethyl)ether	ND	ND	MG/KG		0/23	0.18 - 0.23	2.3E-01	N/A	2.1E-01 C	1.4E-04	NCPSRG	YES	DLASL
	117-81-7	bis(2-Ethylhexyl)phthalate	2.9E-02 J	1.4E-01 J	MG/KG	IR85-SS06-00-01-09C	4/23	0.18 - 0.23	1.4E-01	N/A	3.5E+01 C*	7.2E+00	NCPSRG	NO	BSL
	85-68-7	Butylbenzylphthalate	ND	ND	MG/KG		0/23	0.18 - 0.23	2.3E-01	N/A	2.6E+02 C*	1.5E+02	NCPSRG	NO	DLBSL
	105-60-2	Caprolactam	ND	ND	MG/KG		0/23	0.18 - 0.23	2.3E-01	N/A	3.1E+03 N	1.8E+01	NCPSRG	NO	DLBSL
	86-74-8	Carbazole	ND	ND	MG/KG		0/23	0.18 - 0.23	2.3E-01	N/A	N/A	N/A		NO	NTX
	218-01-9	Chrysene	ND	ND	MG/KG		0/23	0.18 - 0.23	2.3E-01	N/A	1.5E+01 C	1.8E+01	NCPSRG	NO	DLBSL
	53-70-3	Dibenz(a,h)anthracene	ND	ND	MG/KG		0/23	0.036 - 0.047	4.7E-02	N/A	1.5E-02 C	1.9E-01	NCPSRG	YES	DLASL
	132-64-9	Dibenzofuran	ND	ND	MG/KG		0/23	0.18 - 0.23	2.3E-01	N/A	7.8E+00 N	4.7E+00	NCPSRG	NO	DLBSL
	84-66-2	Diethylphthalate	ND	ND	MG/KG		0/23	0.18 - 0.23	2.3E-01	N/A	4.9E+03 N	3.7E+01	NCPSRG	NO	DLBSL
	131-11-3	Dimethyl phthalate	ND	ND	MG/KG		0/23	0.18 - 0.23	2.3E-01	N/A	N/A	N/A		NO	NTX
	84-74-2	Di-n-butylphthalate	ND	ND	MG/KG		0/23	0.18 - 0.23	2.3E-01	N/A	6.1E+02 N	1.9E+01	NCPSRG	NO	DLBSL
	117-84-0	Di-n-octylphthalate	ND	ND	MG/KG		0/23	0.18 - 0.23	2.3E-01	N/A	3.5E+01 C*	3.8E+01	NCPSRG	NO	DLBSL
	206-44-0	Fluoranthene	ND	ND	MG/KG		0/23	0.18 - 0.23	2.3E-01	N/A	2.3E+02 N	3.3E+02	NCPSRG	NO	DLBSL
	86-73-7	Fluorene	ND	ND	MG/KG		0/23	0.18 - 0.23	2.3E-01	N/A	2.3E+02 N	5.6E+01	NCPSRG	NO	DLBSL
	118-74-1	Hexachlorobenzene	ND	ND	MG/KG		0/23	0.18 - 0.23	2.3E-01	N/A	3.0E-01 C	2.6E-03	NCPSRG	NO	DLBSL
	87-68-3	Hexachlorobutadiene	ND	ND	MG/KG		0/23	0.18 - 0.23	2.3E-01	N/A	6.1E+00 C**	8.7E-03	NCPSRG	NO	DLBSL
	77-47-4	Hexachlorocyclopentadiene	ND	ND	MG/KG		0/22	0.18 - 0.23	2.3E-01	N/A	3.7E+01 N	N/A		NO	DLBSL
	67-72-1	Hexachloroethane	ND	ND	MG/KG		0/23	0.18 - 0.23	2.3E-01	N/A	6.1E+00 C**	N/A		NO	DLBSL
	193-39-5	Indeno(1,2,3-cd)pyrene	ND	ND	MG/KG		0/23	0.036 - 0.047	4.7E-02	N/A	1.5E-01 C	2.0E+00	NCPSRG	NO	DLBSL
	78-59-1	Isophorone	ND	ND	MG/KG		0/23	0.036 - 0.047	4.7E-02	N/A	5.1E+02 C*	2.0E-01	NCPSRG	NO	DLBSL
	91-20-3	Naphthalene	ND	ND	MG/KG		0/23	0.18 - 0.23	2.3E-01	N/A	3.6E+00 C*	2.1E-01	NCPSRG	NO	DLBSL
	621-64-7	n-Nitroso-di-n-propylamine	ND	ND	MG/KG		0/23	0.036 - 0.047	4.7E-02	N/A	6.9E-02 C	N/A		NO	DLBSL
	86-30-6	n-Nitrosodiphenylamine	ND	ND	MG/KG		0/23	0.18 - 0.23	2.3E-01	N/A	9.9E+01 C	N/A		NO	DLBSL
	98-95-3	Nitrobenzene	ND	ND	MG/KG		0/23	0.18 - 0.23	2.3E-01	N/A	4.8E+00 C*	N/A		NO	DLBSL
	87-86-5	Pentachlorophenol	ND	ND	MG/KG		0/23	0.18 - 0.23	2.3E-01	N/A	3.0E+00 C	3.1E-02	NCPSRG	NO	DLBSL
	85-01-8	Phenanthrene	ND	ND	MG/KG		0/23	0.18 - 0.23	2.3E-01	N/A	1.7E+03 N	5.7E+01	NCPSRG	NO	DLBSL

Exposure Point	CAS Number	Chemical	Minimum [1] Concentration Qualifier	Maximum [1] Concentration Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration [2] Used for Screening	Background [3] Value	Screening [4] Toxicity Value	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC	Rationale for Contaminant Deletion or Selection
	108-95-2	Phenol	ND	ND	MG/KG		0/23	0.18 - 0.23	2.3E-01	N/A	1.8E+03 N	2.3E-01	NCPSRG	NO	DLBSL
	129-00-0	Pyrene	ND ND	ND ND	MG/KG		0/23	0.18 - 0.23	2.3E-01	N/A	1.7E+02 N	2.3E+02	NCPSRG	NO	DLBSL
	72-54-8	4.4'-DDD	3.9E-04 J	3.1E-03 J	MG/KG	IR85-SS18-00-01-09C	7/23	0.0017 - 0.0023	3.1E-03	N/A	2.0E+00 C	2.4E-01	NCPSRG	NO	BSL
	72-55-9	4.4'-DDE	6.4E-04 J	3.1E-02	MG/KG	IR85-SB07-2-4-09C	14/23	0.0017 - 0.0023	3.1E-02	N/A	1.4E+00 C	N/A	1101 0110	NO	BSL
	50-29-3	4.4'-DDT	6.8E-04 J	2.5E-02 J	MG/KG	IR85-SS18-00-01-09C	13/23	0.0017 - 0.0023	2.5E-02	N/A	1.7E+00 C*	3.4E-01	NCPSRG	NO	BSL
	309-00-2	Aldrin	ND	ND ND	MG/KG		0/23	0.0017 - 0.0023	2.3E-03	N/A	2.9E-02 C*	N/A		NO	DLBSL
	319-84-6	alpha-BHC	ND	ND	MG/KG		0/23	0.0017 - 0.0023	2.3E-03	N/A	7.7E-02 C	1.2E-03	NCPSRG	NO	DLBSL
	5103-71-9	alpha-Chlordane	ND	ND	MG/KG		0/23	0.0017 - 0.0023	2.3E-03	N/A	1.6E+00 C*	6.8E-02	NCPSRG	NO	DLBSL
	12674-11-2	Aroclor-1016	ND	ND	MG/KG		0/23	0.017 - 0.023	2.3E-02	N/A	3.9E-01 N	N/A		NO	DLBSL
	11104-28-2	Aroclor-1221	ND	ND	MG/KG		0/23	0.017 - 0.023	2.3E-02	N/A	1.4E-01 C	N/A		NO	DLBSL
	11141-16-5	Aroclor-1232	ND	ND	MG/KG		0/23	0.017 - 0.023	2.3E-02	N/A	1.4E-01 C	N/A		NO	DLBSL
	53469-21-9	Aroclor-1242	ND	ND	MG/KG		0/23	0.017 - 0.023	2.3E-02	N/A	2.2E-01 C	N/A		NO	DLBSL
	12672-29-6	Aroclor-1248	ND	ND	MG/KG		0/23	0.017 - 0.023	2.3E-02	N/A	2.2E-01 C	N/A		NO	DLBSL
	11097-69-1	Aroclor-1254	4.0E-02 J	5.0E-02	MG/KG	IR85-SS17-00-01-09C	2/23	0.017 - 0.023	5.0E-02	N/A	1.1E-01 C**	N/A		NO	BSL
	11096-82-5	Aroclor-1260	ND	ND	MG/KG		0/23	0.017 - 0.023	2.3E-02	N/A	2.2E-01 C	N/A		NO	DLBSL
	319-85-7	beta-BHC	ND	ND	MG/KG		0/23	0.0017 - 0.0023	2.3E-03	N/A	2.7E-01 C	1.2E-03	NCPSRG	NO	DLBSL
	319-86-8	delta-BHC	1.1E-03 J	1.1E-03 J	MG/KG	IR85-SB13-2-7-09C	1/23	0.0017 - 0.0023	1.1E-03	N/A	2.7E-01 C	1.2E-03	NCPSRG	NO	BSL
	60-57-1	Dieldrin	1.9E-03 J	1.9E-03 J	MG/KG	IR85-SS17-00-01-09C	1/23	0.0017 - 0.0023	1.9E-03	N/A	3.0E-02 C	8.1E-04	NCPSRG	NO	BSL
	959-98-8	Endosulfan I	ND	ND	MG/KG		0/23	0.0017 - 0.0023	2.3E-03	N/A	3.7E+01 N	5.6E+00	NCPSRG	NO	DLBSL
	33213-65-9	Endosulfan II	ND	ND	MG/KG		0/23	0.0017 - 0.0023	2.3E-03	N/A	3.7E+01 N	5.6E+00	NCPSRG	NO	DLBSL
	1031-07-8	Endosulfan sulfate	ND	ND	MG/KG		0/23	0.0017 - 0.0023	2.3E-03	N/A	3.7E+01 N	5.6E+00	NCPSRG	NO	DLBSL
	72-20-8	Endrin	ND	ND	MG/KG		0/23	0.0017 - 0.0023	2.3E-03	N/A	1.8E+00 N	8.1E-01	NCPSRG	NO	DLBSL
	7421-93-4	Endrin aldehyde	ND	ND	MG/KG		0/23	0.0017 - 0.0023	2.3E-03	N/A	1.8E+00 N	8.1E-01	NCPSRG	NO	DLBSL
	53494-70-5	Endrin ketone	ND	ND	MG/KG		0/23	0.0017 - 0.0023	2.3E-03	N/A	1.8E+00 N	8.1E-01	NCPSRG	NO	DLBSL
	58-89-9	gamma-BHC (Lindane)	ND	ND	MG/KG		0/23	0.0017 - 0.0023	2.3E-03	N/A	5.2E-01 C*	1.8E-03	NCPSRG	NO	DLBSL
	5103-74-2	gamma-Chlordane	8.8E-04 J	2.7E-03 J	MG/KG	IR85-SS18-00-01-09C	3/23	0.0017 - 0.0023	2.7E-03	N/A	1.6E+00 C*	6.8E-02	NCPSRG	NO	BSL
	76-44-8	Heptachlor	ND	ND	MG/KG		0/23	0.0017 - 0.0023	2.3E-03	N/A	1.1E-01 C	6.6E-03	NCPSRG	NO	DLBSL
	1024-57-3	Heptachlor epoxide	ND	ND	MG/KG		0/23	0.0017 - 0.0023	2.3E-03	N/A	5.3E-02 C*	8.2E-04	NCPSRG	NO	DLBSL
	72-43-5	Methoxychlor	ND	ND	MG/KG		0/23	0.0017 - 0.0023	2.3E-03	N/A	3.1E+01 N	2.2E+01	NCPSRG	NO	DLBSL
	8001-35-2	Toxaphene	ND	ND	MG/KG		0/23	0.033 - 0.047	4.7E-02	N/A	4.4E-01 C	4.6E-02	NCPSRG	NO	DLBSL
	7429-90-5	Aluminum	3.0E+03 J+	1.2E+04	MG/KG	IR85-SB09-2-7-09C	23/23	75.2 - 1930	1.2E+04	5.5E+03	7.7E+03 N	N/A		YES	ASL
	7440-36-0	Antimony	5.9E+00 J-	5.9E+00 J-	MG/KG	IR85-SS18-00-01-09C	1/23	1.5 - 38.5	5.9E+00	3.6E-01	3.1E+00 N	N/A		YES	ASL
	7440-38-2	Arsenic	5.7E-01 J	9.9E+00 J	MG/KG	IR85-SS17-00-01-09C	23/23	1.5 - 38.5	9.9E+00	6.3E-01	3.9E-01 C*	5.8E+00	NCPSRG	YES	ASL
	7440-39-3	Barium	4.9E+00	3.1E+01 J	MG/KG	IR85-SS17-00-01-09C	22/23	3.8 - 96.3	3.1E+01	1.5E+01	1.5E+03 N	5.8E+02	NCPSRG	NO	BSL
	7440-41-7	Beryllium	2.4E-02 J	9.6E-02 J	MG/KG	IR85-SS18-00-01-09C	13/23	0.15 - 3.9	9.6E-02	1.0E-01	1.6E+01 N	N/A		NO	BSL, BBK
	7440-43-9	Cadmium	5.9E-01	3.5E+00	MG/KG	IR85-SS18-00-01-09C	3/23	0.45 - 11.6	3.5E+00	2.3E-02	7.0E+00 N	3.0E+00	NCPSRG	NO	BSL
	7440-70-2	Calcium	1.7E+01 J	4.7E+02	MG/KG	IR85-SS16-00-01-09C	10/23	75.2 - 1930	4.7E+02	4.4E+02	N/A	N/A		NO	NUT

Table 2.12

OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN

Camp Johnson Site 85 MCB Camp Lejeune, North Carolina

Scenario Timeframe: Future

Medium: Surface and Subsurface Soil

Exposure Medium: Surface and Subsurface Soil

Exposure Point	CAS Number	Chemical	Minimum [1] Concentration Qualifier	Maximum [1] Concentration Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration [2] Used for Screening		Screening [4] Toxicity Value				Rationale for [5] Contaminant Deletion or Selection
	7440-47-3	Chromium	2.7E+00	1.3E+01	MG/KG	IR85-SB09-2-7-09C	22/23	1.5 - 38.5	1.3E+01	6.1E+00	2.9E-01 C	3.8E+00	NCPSRG	YES	ASL
	7440-48-4	Cobalt	1.1E-01 J	2.4E+00 J	MG/KG	IR85-SS17-00-01-09C	15/23	0.38 - 9.6	2.4E+00	2.9E-01	2.3E+00 N	N/A		YES	ASL
	7440-50-8	Copper	5.4E-01 J	2.1E+02	MG/KG	IR85-SS18-00-01-09C	23/23	1.5 - 38.5	2.1E+02	2.6E+00	3.1E+02 N	7.0E+02	NCPSRG	NO	BSL
	7439-89-6	Iron	1.7E+03	1.2E+04	MG/KG	IR85-SS18-00-01-09C	23/23	11.3 - 289	1.2E+04	3.2E+03	5.5E+03 N	1.5E+02	NCPSRG	YES	ASL
	7439-92-1	Lead	2.8E+00	6.1E+02	MG/KG	IR85-SS18-00-01-09C	23/23	1.5 - 38.5	6.1E+02	8.5E+00	4.0E+02 NL	2.7E+02	NCPSRG	YES	ASL
	7439-95-4	Magnesium	8.1E+01 J	4.2E+02	MG/KG	IR85-SB09-2-7-09C	23/23	18.8 - 482	4.2E+02	2.4E+02	N/A	N/A		NO	NUT
	7439-96-5	Manganese	4.5E+00	1.1E+04	MG/KG	IR85-SS17-00-01-09C	23/23	0.38 - 9.6	1.1E+04	9.3E+00	1.8E+02 N	6.5E+01	NCPSRG	YES	ASL
	7439-97-6	Mercury	3.5E-02	8.8E+00	MG/KG	IR85-SS18-00-01-09C	13/23	0.032 - 0.43	8.8E+00	7.1E-02	2.4E+00 N	1.0E+00	NCPSRG	YES	ASL
	7440-02-0	Nickel	7.6E-01 J	8.7E+00 J	MG/KG	IR85-SS17-00-01-09C	22/23	0.75 - 19.3	8.7E+00	1.2E+00	1.5E+02 N	1.3E+02	NCPSRG	NO	BSL
	7440-09-7	Potassium	7.2E+01 J	3.1E+02	MG/KG	IR85-SB09-2-7-09C	19/23	75.2 - 1930	3.1E+02	1.2E+02	N/A	N/A		NO	NUT
	7782-49-2	Selenium	4.5E-01 J	4.7E-01 J	MG/KG	IR85-SB09-2-7-09C	2/23	1.5 - 38.5	4.7E-01	5.1E-01	3.9E+01 N	2.1E+00	NCPSRG	NO	BSL, BBK
	7440-22-4	Silver	8.3E-02 J	2.9E-01 J	MG/KG	IR85-SS16-00-01-09C	8/23	1.5 - 38.5	2.9E-01	1.3E-01	3.9E+01 N	3.4E+00	NCPSRG	NO	BSL
	7440-23-5	Sodium	3.2E+00 J	2.3E+01 J	MG/KG	IR85-SB09-2-7-09C	16/23	188 - 4820	2.3E+01	6.8E+01	N/A	N/A		NO	NUT, BSL
	7440-28-0	Thallium	4.4E-01 J	1.9E+01 J	MG/KG	IR85-SS17-00-01-09C	2/23	2.3 - 57.8	1.9E+01	3.6E-01	N/A	N/A		NO	NTX
	7440-62-2	Vanadium	5.3E+00 J	1.6E+01	MG/KG	IR85-SB09-2-7-09C	22/23	3.8 - 96.3	1.6E+01	8.9E+00	3.9E+01 N	N/A		NO	BSL
	7440-66-6	Zinc	4.2E+00	5.6E+03	MG/KG	IR85-SS17-00-01-09C	17/23	3.8 - 96.3	5.6E+03	6.6E+00	2.3E+03 N	1.2E+03	NCPSRG	YES	ASL

- [1] Minimum/Maximum detected concentrations.
- [2] Maximum concentration is used for screening. If the chemical was not detected, the maximum detection limit is used for screening.
- Background values are lower of two times the arithmetic mean basewide background surface soil or subsurface soil concentrations.

 ${\it Background\ North\ Carolina\ }, \\ {\it Base\ Background\ Soil\ Study\ Report,\ Marine\ Corps\ Base\ Camp\ Lejeune,\ North\ Carolina\ }, \\$

Baker Environmental, April 25, 2001.

[4] Oak Ridge National Laboratory (ORNL). May 2010. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites.

http://epa-prgs.ornl.gov/chemicals/index.shtml. Adjusted (noncarcinogenic RSLs adjusted by dividing by 10) residential soil RSLs.

RSL value for 1,4-Dichlorobenzene used as a surrogate for 1,3-Dichlorobenzene

RSL value for p-cresol used as surrogate for 3- and 4-methylphenol.

RSL value for methoxychlor used as surrogate for 4-chlorophenyl-phenylether.

RSL value for nitrobenzene used as surrogate for 4-nitrophenol.

RSL value for acenaphthene used as surrogate for acenaphthylene.

RSL value for pyrene used as surrogate for benzo(g,h,i)perylene.

RSL value for anthracene used as surrogate for phenanthrene.

RSL value for technical chlordane used as surrogate for alpha-chlordane.

RSL value for technical-HCH used as surrogate for delta-BHC.

RSL value for technical chlordane used as surrogate for gamma-chlordane.

RSL value for 1,3-dichloropropene used as a surrogate for cis-1,3-dichloropropene and trans-1,3-dichloropropene.

RSL value for endosulfan used as surrogate for endosulfan I, endosulfan II, and endosulfan sulfate.

RSL value for endrin used as surrogate for endrin aldehyde and endrin ketone.

RSL value for 2-chlorophenol used as surrogate for 4-chloro-3-methylphenol and 2-nitrophenol.

RSL value for Mercury (inorganic salts) used for mercury.

[5] Rationale Codes

Selection Reason: Above Screening Levels (ASL)

Detection Limit Above Screening Level (DLASL), not quantitatively evaluated in HHRA

Deletion Reason: No Toxicity Information (NTX)

Essential Nutrient (NUT)
Below Screening Level (BSL)
Below Background (BBK)

Detection Limit Below Screening Level (DLBSL)

COPC = Chemical of Potential Concern

ARAR/TBC = Applicable or Relevant and Appropriate Requirement/

To Be Considered

NCPSRG = North Carolina Preliminary Soil Remediation Goal, January, 2010

D = Compound identified in an analysis at a secondary dilution factor

J = Estimated Value

J- = Analyte present, value may be biased low, actual value may be higher

C = Carcinogenic

C* = N screening level < 100x C screening level, therefore

N screening value/10 used as screening level

 $C^{\star\star}$ = N screening level < 10x C screening level, therefore

N screening value/10 used as screening level

MG/KG = Milligrams per kilogram

N = Noncarcinogenic

N/A = Not available

ND = Non-detect

NL = Noncarcinogenic lead residential soil RSL not adjusted by dividing by 10.

 $\mbox{NS} = \mbox{Concentration exceeds Csat (soil saturation concentration)},$

Csat used as screening level.

TABLE 2.12a

Risk Ratio Screening for Surface and Subsurface Soil, Maximum Detected Concentration Camp Johnson Site 85 MCB Camp Lejeune, North Carolina

Analyte	Detection Frequency	Maximum Detected Concentration (Qualifier)	Sample Location of Maximum Detected Concentration	Residential Soil RSL	Acceptable Risk Level	Corresponding Hazard Index ^a	Corresponding Cancer Risk ^b	Target Organ
Metals (mg/kg)								
Aluminum	23 / 23	1.2E+04	IR85-SB09-2-7-09C	7.7E+04	1	0.2	NA	Neurological
Antimony	1 / 23	5.9E+00 J-	IR85-SS18-00-01-09C	3.1E+01	1	0.2	NA	Longevity, Blood
Arsenic	23 / 23	9.9E+00 J	IR85-SS17-00-01-09C	3.9E-01	1E-06	NA	3E-05	NA NA
Chromium	22 / 23	1.3E+01	IR85-SB09-2-7-09C	2.9E-01	1E-06	NA	4E-05	NA
Cobalt	15 / 23	2.4E+00 J	IR85-SS17-00-01-09C	2.3E+01	1	0.1	NA	Thyroid
Iron	23 / 23	1.2E+04	IR85-SS18-00-01-09C	5.5E+04	1	0.2	NA	Gastrointestinal
Lead	23 / 23	6.1E+02	IR85-SS18-00-01-09C	NA	NA	NA	NA	NA
Manganese	23 / 23	1.1E+04	IR85-SS17-00-01-09C	1.8E+03	1	5.9	NA	Central Nervous System
Mercury	13 / 23	8.8E+00	IR85-SS18-00-01-09C	2.4E+01	1	0.4	NA	Autoimmune
Zinc	17 / 23	5.6E+03	IR85-SS17-00-01-09C	2.3E+04	1	0.2	NA	Blood
Cumulative Corresponding Hazard Index ^c						7.2		•
Cumulative Corresponding Cancer Risk ^d							7E-05	

Constituent selected as COPC if it contributes to an overall Hazard Index by target organ greater than 0.5 or Cumulative Corresponding Cancer Risk greater than 5E-05, otherwise, constituent not selected as COPC.

Constituents selected as COPCs are indicated by shading.

COPC = Chemical of Potential Concern

HI = Hazard Index

J = Estimated Value

J- = Analyte present, value may be biased low, actual value may be higher

mg/kg = milligrams per kilogram

NA = Not available/not applicable

^a Corresponding Hazard Index equals maximum detected concentration divided by the RSL divided by the acceptable risk level

^b Corresponding Cancer Risk equals maximum detected concentration divided by the RSL divided by the acceptable risk level.

^c Cumulative Corresponding Hazard Index equals sum of Corresponding Hazard Indices for each constituent.

^d Cumulative Corresponding Cancer Risk equals sum of Corresponding Cancer Risks for each constituent.

TABLE 2.12b

Risk Ratio Screening for Surface and Subsurface Soil, 95% UCL Concentration Camp Johnson Site 85
MCB Camp Lejeune, North Carolina

Analyte	Detection Frequency	95% UCL	95% UCL Rationale	Residential Soil RSL	Acceptable Risk Level	Corresponding Hazard Index ^a	Corresponding Cancer Risk ^b	Target Organ
Metals (mg/kg)								
Aluminum	23 / 23	5.8E+03 1, 3	95% App-G	7.7E+04	1	0.1	NA	Neurological
Arsenic	23 / 23	3.3E+00 4	95% Cheb-m	3.9E-01	1E-06	NA	8E-06	NA
Chromium	22 / 23	5.9E+00 1, 3	95% KM-BCA	2.9E-01	1E-06	NA	2E-05	NA
Lead	23 / 23	4.3E+01 6	Mean	NA	NA	NA	NA	NA
Manganese	23 / 23	3.5E+03 4	97.5% Cheb-m	1.8E+03	1	1.9	NA	Central Nervous System
Cumulative Corresponding Hazard Index ^c						2.0		
Cumulative Corresponding Cancer Risk ^a							3E-05	
						Total N	Jervous System HI =	2.0

Notes:

Constituent selected as COPC if it contributes to an overall Hazard Index by target organ greater than 0.5 or Cumulative Corresponding Cancer Risk greater than 5E-05, otherwise, constituent not selected as COPC.

Constituents selected as COPCs are indicated by shading.

COPC = Chemical of Potential Concern mg/kg = milligrams per kilogram HI = Hazard Index NA = Not available/not applicable

ProUCL, Version 4.00.05 used to determine distribution of data and calculate 95% UCL, following recommendations in users guide (USEPA. May 2010. ProUCL, Version 4.0. Prepared by Lockheed Martin Environmental Services).

Options: 95% Approximate Gamma UCL (95% App-G); 95% Chebyshev (Mean, Sd) UCL (95% Cheb-m); 95% Kaplan-Meier (BCA) UCL (95% KM-BCA); 97.5% Chebyshev (Mean, Sd) UCL (97.5% Cheb-m)

Upper Confidence Limit (UCL) Rationale:

- (1) Shapiro-Wilk W Test/Lilliefors test indicates data are log-normally distributed.
- (2) Shapiro-Wilk W Test/Lilliefors indicates data are normally distributed.
- (3) Test indicates data are gamma distributed.
- (4) Distribution tests are inconclusive
- (5) Max value used because 95% UCL greater than max.
- (6) Lead evaluated using arithmetic mean concentration in lead models, therefore, arithmetic mean concentration presented here.

^a Corresponding Hazard Index equals 95% UCL concentration divided by the RSL divided by the acceptable risk level.

^b Corresponding Cancer Risk equals 95% UCL concentration divided by the RSL divided by the acceptable risk level

^c Cumulative Corresponding Hazard Index equals sum of Corresponding Hazard Indices for each constituent.

^d Cumulative Corresponding Cancer Risk equals sum of Corresponding Cancer Risks for each constituent.

Exposure Point	CAS Number	Chemical	Minimum [1] Concentration Qualifier	Maximum [1] Concentration Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration [2] Used for Screening	Background [3] Value	Screening [4] Toxicity Value	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for [5] Contaminant Deletion or Selection
Site 85	71-55-6	1,1,1-Trichloroethane	ND	ND	UG/L		0/9	1 - 1	1.0E+00	N/A	9.1E+02 N	2.0E+02	MCL, 15A NCAC 2L	NO	DLBSL
Oile 65	79-34-5	1,1,2,2-Tetrachloroethane	ND	ND	UG/L		0/9	1 - 2.4	2.4E+00	N/A	6.7E-02 C	2.0E-01	15A NCAC 2L	YES	DLASL
	76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane(Freon-113)	ND	ND	UG/L		0/9	1 - 1	1.0E+00	N/A	5.9E+03 N	2.0E+05	15A NCAC 2L	NO	DLBSL
	79-00-5	1.1.2-Trichloroethane	ND	ND	UG/L		0/9	1-1	1.0E+00	N/A	2.4E-01 C	5.0E+00	MCL	YES	DLASL
	75-34-3	1,1-Dichloroethane	ND	ND	UG/L		0/9	1 - 1	1.0E+00	N/A	2.4E+00 C	6.0E+00	15A NCAC 2L	NO	DLBSL
	75-35-4	1,1-Dichloroethene	ND	ND	UG/L		0/9	1 - 1	1.0E+00	N/A	3.4E+01 N	7.0E+00	MCL, 15A NCAC 2L	NO	DLBSL
	120-82-1	1,2,4-Trichlorobenzene	ND	ND	UG/L		0/9	1 - 1	1.0E+00	N/A	4.1E-01 C**	7.0E+01	MCL, 15A NCAC 2L	YES	DLASL
	96-12-8	1,2-Dibromo-3-chloropropane	ND	ND	UG/L		0/6	2 - 2	2.0E+00	N/A	3.2E-04 C	2.0E-01	MCL	YES	DLASL
	106-93-4	1,2-Dibromoethane	ND	ND	UG/L		0/9	1 - 1	1.0E+00	N/A	6.5E-03 C	4.0E-02 5.0E-02	15A NCAC 2L MCL	YES	DLASL
												2.0E-02	15A NCAC 2L		
	95-50-1	1,2-Dichlorobenzene	ND	ND	UG/L		0/9	1 - 1	1.0E+00	N/A	3.7E+01 N	6.0E+02	MCL	NO	DLBSL
	107-06-2	1,2-Dichloroethane	ND	ND	UG/L		0/9	1 - 1	1.0E+00	N/A	1.5E-01 C	2.0E+01 5.0E+00	15A NCAC 2L MCL	YES	DLASL
												4.0E-01	15A NCAC 2L		
	78-87-5	1,2-Dichloropropane	ND	ND	UG/L		0/9	1 - 1	1.0E+00	N/A	3.9E-01 C*	5.0E+00 6.0E-01	MCL 15A NCAC 2L	YES	DLASL
	541-73-1	1.3-Dichlorobenzene	ND	ND	UG/L		0/9	1 - 1	1.0E+00	N/A	4.3E-01 C	2.0E+02	15A NCAC 2L	YES	DLASL
	106-46-7	1.4-Dichlorobenzene	ND	ND ND	UG/L		0/9	1 - 1	1.0E+00	N/A	4.3E-01 C	7.5E+01	MCL	YES	DLASL
		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,			0.07.2		-,-					6.0E+00	15A NCAC 2L		
	78-93-3	2-Butanone	ND	ND	UG/L		0/9	5 - 5	5.0E+00	N/A	7.1E+02 N	4.0E+03	15A NCAC 2L	NO	DLBSL
	591-78-6	2-Hexanone	ND	ND	UG/L		0/9	5 - 5	5.0E+00	N/A	4.7E+00 N	N/A		YES	DLASL
	108-10-1	4-Methyl-2-pentanone	ND	ND	UG/L		0/9	5 - 5	5.0E+00	N/A	2.0E+02 N	N/A		NO	DLBSL
	67-64-1	Acetone	ND	ND	UG/L		0/9	5 - 5	5.0E+00	N/A	2.2E+03 N	6.0E+03	15A NCAC 2L	NO	DLBSL
	71-43-2	Benzene	ND	ND	UG/L		0/9	1 - 1	1.0E+00	N/A	4.1E-01 C	5.0E+00 1.0E+00	MCL 15A NCAC 2L	YES	DLASL
	75-27-4	Bromodichloromethane	ND	ND	UG/L		0/9	1 - 1	1.0E+00	N/A	1.2E-01 C	8.0E+01	MCL	YES	DLASL
												6.0E-01	15A NCAC 2L		
ľ	75-25-2	Bromoform	ND	ND	UG/L		0/9	1 - 1	1.0E+00	N/A	8.5E+00 C*	8.0E+01	MCL	NO	DLBSL
	74-83-9	Bromomethane	ND	ND	UG/L		0/8	1 - 1.1	1.1E+00	N/A	8.7E-01 N	4.0E+00 N/A	15A NCAC 2L	YES	DLASL
	74-83-9 75-15-0	Carbon disulfide	ND ND	ND ND	UG/L		0/8	1 - 1.1	1.1E+00 1.0E+00	N/A N/A	1.0E+02 N	7.0E+02	15A NCAC 2L	NO	DLASL
	56-23-5	Carbon distillide Carbon tetrachloride	ND ND	ND ND	UG/L		0/9	1-1	1.0E+00 1.0E+00	N/A N/A	4.4E-01 C	5.0E+02	MCL	YES	DLASL
	55-25-5	Saradi tottadillorido	l III	140	30,2		0,3	1-1	1.02.100	14/73	4.42-01 0	3.0E-01	15A NCAC 2L	123	SEAGE
	108-90-7	Chlorobenzene	ND	ND	UG/L		0/9	1 - 1	1.0E+00	N/A	9.1E+00 N	1.0E+02 5.0E+01	MCL 15A NCAC 2L	NO	DLBSL

Exposure Point	CAS Number	Chemical	Minimum [1] Concentration Qualifier	Maximum [1] Concentration Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration [2] Used for Screening	Background [3] Value	Screening [4] Toxicity Value	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for [5] Contaminant Deletion or Selection
	75-00-3	Chloroethane	ND	ND	UG/L		0/8	1 - 1	1.0E+00	N/A	2.1E+03 N	3.0E+03	15A NCAC 2L	NO	DLBSL
	67-66-3	Chloroform	6.2E+00	1.1E+01 J	UG/L	IR85-MW05-09C	2/9	1 - 1	1.1E+01	N/A	1.9E-01 C	8.0E+01	MCL	YES	ASL
												7.0E+01	15A NCAC 2L		
	74-87-3	Chloromethane	ND	ND	UG/L		0/9	1 - 1	1.0E+00	N/A	1.9E+01 N	3.0E+00	15A NCAC 2L	NO	DLBSL
	156-59-2	cis-1,2-Dichloroethene	ND	ND	UG/L		0/9	1 - 1	1.0E+00	N/A	3.7E+01 N	7.0E+01	MCL, 15A NCAC 2L	NO	DLBSL
	10061-01-5	cis-1,3-Dichloropropene	ND	ND	UG/L		0/9	1 - 1	1.0E+00	N/A	4.3E-01 C*	4.0E-01	15A NCAC 2L	YES	DLASL
	110-82-7	Cyclohexane	ND	ND	UG/L		0/9	1 - 1	1.0E+00	N/A	1.3E+03 N	N/A		NO	DLBSL
	124-48-1	Dibromochloromethane	ND	ND	UG/L		0/9	1 - 1	1.0E+00	N/A	1.5E-01 C	6.0E+01	MCL	YES	DLASL
		L										4.0E-01	15A NCAC 2L		
	75-71-8	Dichlorodifluoromethane (Freon-12)	ND	ND	UG/L		0/9	1 - 1	1.0E+00	N/A	3.9E+01 N	1.0E+03	15A NCAC 2L	NO	DLBSL
	100-41-4	Ethylbenzene	ND	ND	UG/L		0/9	1 - 1	1.0E+00	N/A	1.5E+00 C	7.0E+02	MCL	NO	DLBSL
												6.0E+02	15A NCAC 2L		
	98-82-8	Isopropylbenzene	ND	ND	UG/L		0/9	1 - 1	1.0E+00	N/A	6.8E+01 N	7.0E+01	15A NCAC 2L	NO	DLBSL
	79-20-9	Methyl acetate	ND	ND	UG/L		0/9	1 - 1	1.0E+00	N/A	3.7E+03 N	N/A		NO	DLBSL
	108-87-2 75-09-2	Methylcyclohexane Methylene chloride	ND 1.4E+01 J	ND 1.9E+02	UG/L UG/L	IR85-TW06-09C	0/9 2/9	1 - 1 1 - 1	1.0E+00 1.9E+02	N/A N/A	8.8E+01 N 4.8E+00 C	N/A 5.0E+00	MCL, 15A NCAC 2L	NO YES	DLBSL ASL
	1634-04-4	Methyl-tert-butyl ether (MTBE)	ND	ND	UG/L		0/9	1 - 1	1.0E+00	N/A	1.2E+01 C	2.0E+01	15A NCAC 2L	NO	DLBSL
	100-42-5	Styrene	ND	ND	UG/L		0/9	1 - 1	1.0E+00	N/A	1.6E+02 N	1.0E+02	MCL	NO	DLBSL
												7.0E+01	15A NCAC 2L		
	127-18-4	Tetrachloroethene	ND	ND	UG/L		0/9	1 - 1.1	1.1E+00	N/A	1.1E-01 C	5.0E+00	MCL	YES	DLASL
												7.0E-01	15A NCAC 2L		
	108-88-3	Toluene	ND	ND	UG/L		0/9	1 - 1	1.0E+00	N/A	2.3E+02 N	1.0E+03	MCL	NO	DLBSL
												6.0E+02	15A NCAC 2L		
	156-60-5	trans-1,2-Dichloroethene	ND	ND	UG/L		0/9	1 - 1	1.0E+00	N/A	1.1E+01 N	1.0E+02	MCL, 15A NCAC 2L	NO	DLBSL
	10061-02-6	trans-1,3-Dichloropropene	ND	ND	UG/L		0/9	1 - 1	1.0E+00	N/A	4.3E-01 C*	4.0E-01	15A NCAC 2L	YES	DLASL
	79-01-6	Trichloroethene	ND	ND	UG/L		0/9	1 - 5.1	5.1E+00	N/A	2.0E+00 C	5.0E+00	MCL	YES	DLASL
										1		3.0E+00	15A NCAC 2L		
	75-69-4	Trichlorofluoromethane(Freon-11)	ND	ND	UG/L		0/9	1 - 1	1.0E+00	N/A	1.3E+02 N	2.0E+03	15A NCAC 2L	NO	DLBSL
	75-01-4	Vinyl chloride	ND	ND	UG/L		0/9	1 - 1	1.0E+00	N/A	1.6E-02 C	2.0E+00	MCL	YES	DLASL
										1		3.0E-02	15A NCAC 2L		
1	1330-20-7	Xylene, total	ND	ND	UG/L		0/9	1 - 1.2	1.2E+00	N/A	2.0E+01 N	1.0E+04	MCL	NO	DLBSL
										1		5.0E+02	15A NCAC 2L		
	92-52-4	1,1-Biphenyl	ND	ND	UG/L		0/9	10 - 11	1.1E+01	N/A	1.8E+02 N	4.0E+02	15A NCAC 2L	NO	DLBSL
	108-60-1	2,2'-Oxybis(1-chloropropane)	ND	ND	UG/L		0/9	10 - 11	1.1E+01	N/A	3.2E-01 C	N/A		YES	DLASL
	95-95-4	2,4,5-Trichlorophenol	ND	ND	UG/L		0/9	10 - 11	1.1E+01	N/A	3.7E+02 N	N/A		NO	DLBSL
	120-83-2	2,4-Dichlorophenol	ND	ND	UG/L		0/9	10 - 11	1.1E+01	N/A	1.1E+01 N	N/A		YES	DLASL
	105-67-9	2,4-Dimethylphenol	ND	ND	UG/L		0/9	10 - 11	1.1E+01	N/A	7.3E+01 N	1.0E+02	15A NCAC 2L	NO	DLBSL

Exposure Point	CAS Number	Chemical	Minimum [1] Concentration Qualifier	Maximum [1] Concentration Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration [2] Used for Screening	Background [3] Value	Screening [4] Toxicity Value	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for [5] Contaminant Deletion or Selection
	51-28-5	2,4-Dinitrophenol	ND	ND	UG/L		0/9	20 - 21	2.1E+01	N/A	7.3E+00 N	N/A		YES	DLASL
	121-14-2	2,4-Dinitrotoluene	ND	ND	UG/L		0/9	10 - 11	1.1E+01	N/A	2.2E-01 C	N/A		YES	DLASL
	606-20-2	2,6-Dinitrotoluene	ND	ND	UG/L		0/9	10 - 11	1.1E+01	N/A	3.7E+00 N	N/A		YES	DLASL
	91-58-7	2-Chloronaphthalene	ND	ND	UG/L		0/9	10 - 11	1.1E+01	N/A	2.9E+02 N	N/A		NO	DLBSL
	95-57-8	2-Chlorophenol	ND	ND	UG/L		0/9	10 - 11	1.1E+01	N/A	1.8E+01 N	4.0E-01	15A NCAC 2L	NO	DLBSL
	91-57-6	2-Methylnaphthalene	ND	ND	UG/L		0/9	10 - 11	1.1E+01	N/A	1.5E+01 N	3.0E+01	15A NCAC 2L	NO	DLBSL
	95-48-7	2-Methylphenol	ND	ND	UG/L		0/9	10 - 11	1.1E+01	N/A	1.8E+02 N	N/A		NO	DLBSL
	88-74-4	2-Nitroaniline	ND	ND	UG/L		0/9	10 - 11	1.1E+01	N/A	3.7E+01 N	N/A		NO	DLBSL
	88-75-5	2-Nitrophenol	ND	ND	UG/L		0/9	10 - 11	1.1E+01	N/A	1.8E+01 N	N/A		NO	DLBSL
	91-94-1	3,3'-Dichlorobenzidine	ND	ND	UG/L		0/9	20 - 21	2.1E+01	N/A	1.5E-01 C	N/A		YES	DLASL
	99-09-2	3-Nitroaniline	ND	ND	UG/L		0/9	10 - 11	1.1E+01	N/A	3.7E+01 N	N/A		NO	DLBSL
	534-52-1	4,6-Dinitro-2-methylphenol	ND	ND	UG/L		0/9	20 - 21	2.1E+01	N/A	2.9E-01 N	N/A		YES	DLASL
	101-55-3	4-Bromophenyl-phenylether	ND	ND	UG/L		0/9	10 - 11	1.1E+01	N/A	N/A	N/A		NO	NTX
	59-50-7	4-Chloro-3-methylphenol	ND	ND	UG/L		0/9	10 - 11	1.1E+01	N/A	3.7E+02 N	N/A		NO	DLBSL
	106-47-8	4-Chloroaniline	ND	ND	UG/L		0/9	10 - 11	1.1E+01	N/A	3.4E-01 C	N/A		YES	DLASL
	7005-72-3	4-Chlorophenyl-phenylether	ND	ND	UG/L		0/9	10 - 11	1.1E+01	N/A	1.8E+01 N	N/A		NO	DLBSL
	106-44-5	4-Methylphenol	ND	ND	UG/L		0/9	20 - 21	2.1E+01	N/A	1.8E+01 N	4.0E+01	15A NCAC 2L	YES	DLASL
	100-01-6	4-Nitroaniline	ND	ND	UG/L		0/9	10 - 11	1.1E+01	N/A	3.4E+00 C*	N/A		YES	DLASL
	100-02-7	4-Nitrophenol	ND	ND	UG/L		0/9	20 - 21	2.1E+01	N/A	1.2E-01 C	N/A		YES	DLASL
	83-32-9	Acenaphthene	ND	ND	UG/L		0/9	10 - 11	1.1E+01	N/A	2.2E+02 N	8.0E+01	15A NCAC 2L	NO	DLBSL
	208-96-8	Acenaphthylene	ND	ND	UG/L		0/9	10 - 11	1.1E+01	N/A	2.2E+02 N	2.0E+02	15A NCAC 2L	NO	DLBSL
	98-86-2	Acetophenone	ND	ND	UG/L		0/9	10 - 11	1.1E+01	N/A	3.7E+02 N	N/A		NO	DLBSL
	120-12-7	Anthracene	ND	ND	UG/L		0/9	10 - 11	1.1E+01	N/A	1.1E+03 N	2.0E+03	15A NCAC 2L	NO	DLBSL
	1912-24-9	Atrazine	ND	ND	UG/L		0/9	20 - 21	2.1E+01	N/A	2.9E-01 C	3.0E+00	MCL, 15A NCAC 2L	YES	DLASL
	100-52-7	Benzaldehyde	ND	ND	UG/L		0/4	10 - 10	1.0E+01	N/A	3.7E+02 N	N/A		NO	DLBSL
	56-55-3	Benzo(a)anthracene	ND	ND	UG/L		0/9	10 - 11	1.1E+01	N/A	2.9E-02 C	5.0E-02	15A NCAC 2L	YES	DLASL
	50-32-8	Benzo(a)pyrene	ND	ND	UG/L		0/9	10 - 11	1.1E+01	N/A	2.9E-03 C	2.0E-01	MCL	YES	DLASL
												5.0E-03	15A NCAC 2L		
	205-99-2	Benzo(b)fluoranthene	ND	ND	UG/L		0/9	10 - 11	1.1E+01	N/A	2.9E-02 C	5.0E-02	15A NCAC 2L	YES	DLASL
	191-24-2	Benzo(g,h,i)perylene	ND	ND	UG/L		0/9	10 - 11	1.1E+01	N/A	1.1E+02 N	2.0E+02	15A NCAC 2L	NO	DLBSL
	207-08-9	Benzo(k)fluoranthene	ND	ND	UG/L		0/9	10 - 11	1.1E+01	N/A	2.9E-01 C	5.0E-01	15A NCAC 2L	YES	DLASL
	111-91-1	bis(2-Chloroethoxy)methane	ND	ND	UG/L		0/9	10 - 11	1.1E+01	N/A	1.1E+01 N	N/A		YES	DLASL
	111-44-4	bis(2-Chloroethyl)ether	ND	ND	UG/L		0/9	10 - 11	1.1E+01	N/A	1.2E-02 C	3.0E-02	15A NCAC 2L	YES	DLASL
	117-81-7	bis(2-Ethylhexyl)phthalate	ND	ND	UG/L		0/9	10 - 11	1.1E+01	N/A	4.8E+00 C	6.0E+00	MCL	YES	DLASL
										1		3.0E+00	15A NCAC 2L		
	85-68-7	Butylbenzylphthalate	ND	ND	UG/L		0/9	10 - 11	1.1E+01	N/A	3.5E+01 C	1.0E+03	15A NCAC 2L	NO	DLBSL
I	105-60-2	Caprolactam	ND	ND	UG/L		0/9	10 - 11	1.1E+01	N/A	1.8E+03 N	4.0E+03	15A NCAC 2L	NO	DLBSL
	86-74-8	Carbazole	ND	ND	UG/L		0/9	10 - 11	1.1E+01	N/A	N/A	N/A		NO	NTX

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	218-01-9	Chrysene	ND	ND	UG/L		0/9	10 - 11	1.1E+01	N/A	2.9E+00 C	5.0E+00	15A NCAC 2L	YES	DLASL
	53-70-3	Dibenz(a,h)anthracene	ND	ND	UG/L		0/9	10 - 11	1.1E+01	N/A	2.9E-03 C	5.0E-03	15A NCAC 2L	YES	DLASL
	132-64-9	Dibenzofuran	ND	ND	UG/L		0/9	10 - 11	1.1E+01	N/A	3.7E+00 N	N/A		YES	DLASL
	84-66-2	Diethylphthalate	ND	ND	UG/L		0/9	10 - 11	1.1E+01	N/A	2.9E+03 N	6.0E+03	15A NCAC 2L	NO	DLBSL
	131-11-3	Dimethyl phthalate	ND	ND	UG/L		0/9	10 - 11	1.1E+01	N/A	N/A	N/A		NO	NTX
	84-74-2	Di-n-butylphthalate	ND	ND	UG/L		0/9	20 - 21	2.1E+01	N/A	3.7E+02 N	7.0E+02	15A NCAC 2L	NO	DLBSL
	117-84-0	Di-n-octylphthalate	ND	ND	UG/L		0/9	10 - 11	1.1E+01	N/A	4.8E+00 C	1.0E+02	15A NCAC 2L	YES	DLASL
	206-44-0	Fluoranthene	ND	ND	UG/L		0/9	10 - 11	1.1E+01	N/A	1.5E+02 N	3.0E+02	15A NCAC 2L	NO	DLBSL
	86-73-7	Fluorene	ND	ND	UG/L		0/9	10 - 11	1.1E+01	N/A	1.5E+02 N	3.0E+02	15A NCAC 2L	NO	DLBSL
	118-74-1	Hexachlorobenzene	ND	ND	UG/L		0/9	10 - 11	1.1E+01	N/A	4.2E-02 C	1.0E+00	MCL	YES	DLASL
	87-68-3	Have all least one discour	ND	ND	UG/L		0/9	40.44	4.45.04	N//0	8.6E-01 C*	2.0E-02	15A NCAC 2L	YES	DLASL
	77-47-4	Hexachlorobutadiene Hexachlorocyclopentadiene	ND ND	ND ND	UG/L		0/9	10 - 11 10 - 11	1.1E+01 1.1E+01	N/A N/A	2.2E+01 N	4.0E-01 5.0E+01	15A NCAC 2L MCL	NO	DLASL
	67-72-1	Hexachlorocyclopentaciene	ND ND	ND ND	UG/L		0/9	10 - 11	1.1E+01 1.1E+01	N/A N/A	3.7E+00 C**	5.0E+01	IVICL	YES	DLASL
	193-39-5	Indeno(1,2,3-cd)pyrene	ND ND	ND ND	UG/L		0/9	10 - 11	1.1E+01 1.1E+01	N/A N/A	2.9E-02 C	5.0E-02	15A NCAC 2L	YES	DLASL
	78-59-1	Isophorone	ND ND	ND ND	UG/L		0/9	10 - 11	1.1E+01 1.1E+01	N/A N/A	7.1E+01 C	4.0E+01	15A NCAC 2L 15A NCAC 2L	NO	DLASL
	91-20-3	Naphthalene	ND ND	ND ND	UG/L		0/9	10 - 11	1.1E+01 1.1E+01	N/A N/A	1.4E-01 C*	6.0E+00	15A NCAC 2L 15A NCAC 2L	YES	DLASL
	621-64-7	n-Nitroso-di-n-propylamine	ND ND	ND ND	UG/L		0/9	10 - 11	1.1E+01 1.1E+01	N/A N/A	9.6E-03 C	0.0E+00	15A NCAC 2L	YES	DLASL
	86-30-6	n-Nitrosodiphenylamine	ND	ND ND	UG/L		0/9	10 - 11	1.1E+01	N/A	1.4E+01 C	N/A		NO	DLASL
	98-95-3	Nitrobenzene	ND ND	ND ND	UG/L		0/9	10 - 11	1.1E+01	N/A	1.4E+01 C	N/A		YES	DLASL
	87-86-5	Pentachlorophenol	ND ND	ND ND	UG/L		0/9	20 - 21	2.1E+01	N/A	5.6E-01 C	1.0E+00	MCL	YES	DLASL
	67-60-5	Pentacino opneno	ND	ND	UG/L		0/3	20-21	2.12+01	IN/A	3.0L-01 C	3.0E-01	15A NCAC 2L	ILS	DEAGE
	85-01-8	Phenanthrene	ND	ND	UG/L		0/9	10 - 11	1.1E+01	N/A	1.1E+03 N	2.0E+02	15A NCAC 2L	NO	DLBSL
	108-95-2	Phenol	ND	ND	UG/L		0/9	10 - 11	1.1E+01	N/A	1.1E+03 N	3.0E+01	15A NCAC 2L	NO	DLBSL
	129-00-0	Pyrene	ND	ND	UG/L		0/9	10 - 11	1.1E+01	N/A	1.1E+02 N	2.0E+02	15A NCAC 2L	NO	DLBSL
	72-54-8	4,4'-DDD	7.9E-02 J	7.9E-02 J	UG/L	IR85-TW06-09C	1/9	0.05 - 0.078	7.9E-02	N/A	2.8E-01 C	1.0E-01	15A NCAC 2L	NO	BSL
	72-55-9	4,4'-DDE	ND	ND	UG/L		0/9	0.05 - 0.078	7.8E-02	N/A	2.0E-01 C	N/A		NO	DLBSL
	50-29-3	4,4'-DDT	ND	ND	UG/L		0/9	0.05 - 0.078	7.8E-02	N/A	2.0E-01 C*	1.0E-01	15A NCAC 2L	NO	DLBSL
	309-00-2	Aldrin	ND	ND	UG/L		0/9	0.05 - 0.078	7.8E-02	N/A	4.0E-03 C	N/A		YES	DLASL
	319-84-6	alpha-BHC	ND	ND	UG/L		0/9	0.05 - 0.078	7.8E-02	N/A	1.1E-02 C	2.0E-02	15A NCAC 2L	YES	DLASL
	5103-71-9	alpha-Chlordane	ND	ND	UG/L		0/9	0.05 - 0.078	7.8E-02	N/A	1.9E-01 C*	2.0E+00	MCL	NO	DLBSL
											1	1.0E-01	15A NCAC 2L		
	12674-11-2	Aroclor-1016	ND	ND	UG/L		0/9	0.5 - 0.78	7.8E-01	N/A	2.6E-01 C**	5.0E-01	MCL	YES	DLASL
	11104-28-2	Aroclor-1221	ND	ND	UG/L		0/9	0.5 - 0.78	7.8E-01	N/A	6.8E-03 C	5.0E-01	MCL	YES	DLASL
	11141-16-5	Aroclor-1232	ND	ND	UG/L		0/9	0.5 - 0.78	7.8E-01	N/A	6.8E-03 C	5.0E-01	MCL	YES	DLASL
	53469-21-9	Aroclor-1242	ND	ND	UG/L		0/9	0.5 - 0.78	7.8E-01	N/A	3.4E-02 C	5.0E-01	MCL	YES	DLASL
	12672-29-6	Aroclor-1248	ND	ND	UG/L		0/9	0.5 - 0.78	7.8E-01	N/A	3.4E-02 C	5.0E-01	MCL	YES	DLASL
I	11097-69-1	Aroclor-1254	ND	ND	UG/L		0/9	0.5 - 0.78	7.8E-01	N/A	3.4E-02 C*	5.0E-01	MCL	YES	DLASL

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	11096-82-5	Aroclor-1260	ND	ND	UG/L		0/9	0.5 - 0.78	7.8E-01	N/A	3.4E-02 C	5.0E-01	MCL	YES	DLASL
	319-85-7	beta-BHC	ND	ND	UG/L		0/9	0.05 - 0.078	7.8E-02	N/A	3.7E-02 C	2.0E-02	15A NCAC 2L	YES	DLASL
	319-86-8	delta-BHC	ND	ND	UG/L		0/9	0.05 - 0.078	7.8E-02	N/A	3.7E-02 C	2.0E-02	15A NCAC 2L	YES	DLASL
	60-57-1	Dieldrin	ND	ND	UG/L		0/9	0.05 - 0.078	7.8E-02	N/A	4.2E-03 C	2.0E-03	15A NCAC 2L	YES	DLASL
	959-98-8	Endosulfan I	ND	ND	UG/L		0/9	0.05 - 0.078	7.8E-02	N/A	2.2E+01 N	4.0E+01	15A NCAC 2L	NO	DLBSL
	33213-65-9	Endosulfan II	ND	ND	UG/L		0/9	0.05 - 0.078	7.8E-02	N/A	2.2E+01 N	4.0E+01	15A NCAC 2L	NO	DLBSL
	1031-07-8	Endosulfan sulfate	ND	ND	UG/L		0/9	0.05 - 0.078	7.8E-02	N/A	2.2E+01 N	4.0E+01	15A NCAC 2L	NO	DLBSL
	72-20-8	Endrin	ND	ND	UG/L		0/9	0.05 - 0.078	7.8E-02	N/A	1.1E+00 N	2.0E+00	MCL, 15A NCAC 2L	NO	DLBSL
	7421-93-4	Endrin aldehyde	ND	ND	UG/L		0/9	0.05 - 0.078	7.8E-02	N/A	1.1E+00 N	2.0E+00	15A NCAC 2L	NO	DLBSL
	53494-70-5	Endrin ketone	ND	ND	UG/L		0/9	0.05 - 0.078	7.8E-02	N/A	1.1E+00 N	2.0E+00	15A NCAC 2L	NO	DLBSL
	58-89-9	gamma-BHC (Lindane)	ND	ND	UG/L		0/9	0.05 - 0.078	7.8E-02	N/A	6.1E-02 C	2.0E-01	MCL	YES	DLASL
												3.0E-02	15A NCAC 2L		
	5103-74-2	gamma-Chlordane	ND	ND	UG/L		0/9	0.05 - 0.078	7.8E-02	N/A	1.9E-01 C*	2.0E+00	MCL	NO	DLBSL
												1.0E-01	15A NCAC 2L		
	76-44-8	Heptachlor	ND	ND	UG/L		0/9	0.05 - 0.078	7.8E-02	N/A	1.5E-02 C	4.0E-01	MCL	YES	DLASL
												8.0E-03	15A NCAC 2L		
	1024-57-3	Heptachlor epoxide	ND	ND	UG/L		0/9	0.05 - 0.078	7.8E-02	N/A	7.4E-03 C*	2.0E-01	MCL	YES	DLASL
												4.0E-03	15A NCAC 2L		
	72-43-5	Methoxychlor	ND	ND	UG/L		0/9	0.05 - 0.078	7.8E-02	N/A	1.8E+01 N	4.0E+01	MCL, 15A NCAC 2L	NO	DLBSL
	8001-35-2	Toxaphene	ND	ND	UG/L		0/9	1 - 1.6	1.6E+00	N/A	6.1E-02 C	3.0E+00	MCL	YES	DLASL
												3.0E-02	15A NCAC 2L		
	7429-90-5	Aluminum	1.1E+02 J	1.5E+04	UG/L	IR85-TW06-09C	9/9	1000 - 1000	1.5E+04	1.9E+03	3.7E+03 N	50 - 200	SMCL	YES	ASL
	7440-36-0	Antimony	ND	ND	UG/L		0/9	20 - 40	4.0E+01	3.3E+00	1.5E+00 N	6.0E+00	MCL	YES	DLASL
	7440-38-2	Arsenic	2.0E+00 J	2.0E+00 J	UG/L	IR85-MW02-09C	1/9	20 - 20	2.0E+00	5.8E+00	4.5E-02 C	1.0E+01	MCL, 15A NCAC 2L	NO	BBK
	7440-39-3	Barium	2.4E+01 J	5.7E+01	UG/L	IR85-MW02-09C	5/9	50 - 50	5.7E+01	8.6E+01	7.3E+02 N	2.0E+03	MCL	NO	BSL, BBK
												7.0E+02	15A NCAC 2L		
	7440-41-7	Beryllium	9.8E-02 J	2.7E-01 J	UG/L	IR85-MW02-09C	5/9	2 - 2	2.7E-01	3.1E-01	7.3E+00 N	4.0E+00	MCL	NO	BSL, BBK
	7440-43-9	Cadmium	1.4E-01 J	2.8E-01 J	UG/L	IR85-TW08-09C	3/9	6 - 6	2.8E-01	3.6E-01	1.8E+00 N	5.0E+00	MCL	NO	BSL, BBK
												2.0E+00	15A NCAC 2L		
1	7440-70-2	Calcium	5.7E+02 J	3.2E+03	UG/L	IR85-TW06-09C	9/9	1000 - 1000	3.2E+03	6.9E+04	N/A	N/A		NO	NUT, BSL
1	7440-47-3	Chromium	1.8E+00 J	1.9E+01 J	UG/L	IR85-TW06-09C	2/9	20 - 20	1.9E+01	3.1E+00	4.3E-02 C	1.0E+02	MCL	YES	ASL
1												1.0E+01	15A NCAC 2L		
1	7440-48-4	Cobalt	6.4E-01 J	1.2E+00 J	UG/L	IR85-TW05-09C	5/9	5 - 5	1.2E+00	3.4E+00	1.1E+00 N	N/A		NO	BBK
1	7440-50-8	Copper	2.4E+00 J	6.8E+00 J	UG/L	IR85-TW06-09C	5/9	20 - 40	6.8E+00	2.8E+00	1.5E+02 N	1.3E+03	MCL	NO	BSL
1												1.0E+03	15A NCAC 2L		
1	7439-89-6	Iron	1.1E+02 J	6.9E+03	UG/L	IR85-TW06-09C	9/9	150 - 150	6.9E+03	6.0E+03	2.6E+03 N	3.0E+02	SMCL, 15A NCAC 2L	YES	ASL
1	7439-92-1	Lead	2.4E+00 J	1.6E+01 J	UG/L	IR85-TW06-09C	3/9	20 - 40	1.6E+01	2.8E+00	N/A	1.5E+01	MCL, 15A NCAC 2L	YES	ASL
	7439-95-4	Magnesium	3.8E+02	2.5E+03	UG/L	IR85-TW05-09C	9/9	250 - 250	2.5E+03	6.4E+03	N/A	N/A		NO	NUT, BSL

Table 2.12

OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN

Camp Johnson Site 85 MCB Camp Lejeune, North Carolina

Scenario Timeframe: Future
Medium: Groundwater
Exosure Medium: Groundwater

Exposure Point	CAS Number	Chemical	Minimum [1] Concentration Qualifier	Maximum [1] Concentration Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration [2] Used for Screening	Background [3] Value	Screening [4] Toxicity Value	Potential ARAR/TBC Value	Potential ARAR/TBC Source		Rationale for [5] Contaminant Deletion or Selection
	7439-96-5	Manganese	4.2E+00 J	7.3E+01	UG/L	IR85-TW05-09C	9/9	5 - 5	7.3E+01	2.1E+02	8.8E+01 N	5.0E+01	SMCL, 15A NCAC 2L	NO	BSL, BBK
	7439-97-6	Mercury	3.6E-02 J	8.5E-02 J	UG/L	IR85-MW02-09C	2/9	0.2 - 0.2	8.5E-02	1.0E-01	1.1E+00 N	2.0E+00	MCL	NO	BSL, BBK
												1.0E+00	15A NCAC 2L		
	7440-02-0	Nickel	1.2E+00 J	2.0E+01	UG/L	IR85-TW05-09C	7/9	10 - 10	2.0E+01	8.0E+00	7.3E+01 N	1.0E+02	15A NCAC 2L	NO	BSL
	7440-09-7	Potassium	5.0E+02 J	2.2E+03	UG/L	IR85-MW02-09C	9/9	1000 - 1000	2.2E+03	3.3E+03	N/A	N/A		NO	NUT, BSL
	7782-49-2	Selenium	4.3E+00 J	4.3E+00 J	UG/L	IR85-TW05-09C	1/9	20 - 20	4.3E+00	3.1E+00	1.8E+01 N	5.0E+01	MCL	NO	BSL
												2.0E+01	15A NCAC 2L		
	7440-22-4	Silver	1.5E+00 J	1.5E+00 J	UG/L	IR85-TW04-09C	1/9	20 - 20	1.5E+00	7.7E-01	1.8E+01 N	2.0E+01	15A NCAC 2L	NO	BSL
	7440-23-5	Sodium	2.8E+03	2.7E+04	UG/L	IR85-TW06-09C	9/9	2500 - 2500	2.7E+04	2.3E+04	N/A	1.0E+02 N/A	SMCL	NO	NUT
				-		IK05-1 WU0-09C			_				MOI		NTX
	7440-28-0	Thallium	ND	ND	UG/L		0/9	30 - 30	3.0E+01	3.8E+00	N/A	2.0E+00	MCL	NO	
	7440-62-2	Vanadium	ND	ND	UG/L		0/9	50 - 100	1.0E+02	4.7E+00	1.8E+01 N	N/A		YES	DLASL
	7440-66-6	Zinc	4.4E+00 J	1.1E+02	UG/L	IR85-TW08-09C	7/9	50 - 100	1.1E+02	4.2E+01	1.1E+03 N	1.0E+03	15A NCAC 2L	NO	BSL
												5.0E+03	SMCL		

[1] Minimum/Maximum detected concentrations.

[2] Maximum concentration is used for screening. If the chemical was not detected, the maximum detection limit is used for screening.

[3] Background values are two times the arithmetic mean basewide background shallow groundwater concentrations. Background values are from Final Base Background Soil Study Report, Marine Corps Base Camp Lejeune, North Carolina, Baker Environmental, April 25, 2001.

Oak Ridge National Laboratory (ORNL). May 17, 2010. Regional Screening Levels for Chemical Contaminants at Superfund Sites.

http://epa-prgs.ornl.gov/chemicals/index.shtml. Adjusted (noncarcinogenic RSLs adjusted by dividing by 10) tap water RSLs.

RSL value for n-Hexane used as surrogate for Methylcyclohexane.

RSL value for 1,4-Dichlorobenzene used as a surrogate for 1,3-Dichlorobenzene

RSL value for 2-Nitroaniline used as surrogate for 3-Nitroaniline.

RSL value for methoxychlor used as surrogate for 4-chlorophenyl-phenylether.

RSL value for nitrobenzene used as surrogate for 4-nitrophenol.

RSL value for acenaphthene used as surrogate for acenaphthylene.

RSL value for pyrene used as surrogate for benzo(g,h,i)perylene.

RSL value for anthracene used as surrogate for phenanthrene.

RSL value for technical chlordane used as surrogate for alpha-chlordane. RSL value for technical-HCH used as surrogate for delta-BHC.

RSL value for technical chlordane used as surrogate for gamma-chlordane.

RSL value for 1,3-dichloropropene used as a surrogate for cis-1,3-dichloropropene and trans-1,3-dichloropropene.

RSL value for endosulfan used as surrogate for endosulfan I, endosulfan II, and endosulfan sulfate.

RSL value for endrin used as surrogate for endrin aldehyde and endrin ketone.

RSL value for 2-chlorophenol used as surrogate for 4-chloro-3-methylphenol and 2-nitrophenol.

RSL value for chromium VI used for total chromium.

[5] Rationale Codes

[4]

Selection Reason: Above Screening Levels (ASL)

Detection Limit Above Screening Level (DLASL), not quantitatively evaluated in HHRA

Deletion Reason: No Toxicity Information (NTX)

Essential Nutrient (NUT)
Below Screening Level (BSL)
Below Background (BBK)

Detection Limit Below Screening Level (DLBSL)

COPC = Chemical of Potential Concern

ARAR/TBC = Applicable or Relevant and Appropriate Requirement/

To Be Considered

MCL = Maximum Contaminant Level from EPA's National Primary Drinking Water Standards

SMCL = Secondary Maximum Contaminant Level

15A NCAC 2L = North Carolina Classifications and Groundwater Quality Standards,

January 2010.

J = Estimated Value

C* = N screening level < 100x C screening level, therefore

N screening value/10 used as screening level

 C^{**} = N screening level < 10x C screening level, therefore

N screening value/10 used as screening level

N = Noncarcinogenic

N/A = Not available/not applicable

ND = Not detected

UG/L = Micrograms per liter

TABLE 2.13a

Risk Ratio Screening for Groundwater, Maximum Detected Concentration Camp Johnson Site 85 MCB Camp Lejeune, North Carolina

Analyte	Detection Frequency	Detected	Sample Location of Maximum Detected Concentration	Tap Water RSL	Acceptable Risk Level	Corresponding Hazard Index ^a	Corresponding Cancer Risk ^b	Target Organ
Volatile Organic Compounds (ug/L)								
Chloroform	2 / 9	1.1E+01 J	IR85-MW05-09C	1.9E-01	1E-06	NA	6E-05	NA
Methylene Chloride	2 / 9	1.9E+02	IR85-TW06-09C	4.8E+00	1E-06	NA	4E-05	NA
Metals (ug/L)								
Aluminum	9 / 9	1.5E+04	IR85-TW06-09C	3.7E+04	1	0.4	NA	Neurological
Chromium	2 / 9	1.9E+01 J	IR85-TW06-09C	4.3E-02	1E-06	NA	4E-04	NA
Iron	9 / 9	6.9E+03	IR85-TW06-09C	2.6E+04	1	0.3		Gastrointestinal
Lead	3 / 9	1.6E+01 J	IR85-TW06-09C	NA	NA	NA	NA	
Cumulative Corresponding Hazard Index ^c						0.7		
Cumulative Corresponding Cancer Risk ^a							5E-04	
		•				Total	Gastrointestinal HI =	0.3
Notes:						To	otal Neurological HI =	0.4

Notes:

Constituent selected as COPC if it contributes to an overall Hazard Index by target organ greater than 0.5 or Cumulative Corresponding Cancer Risk greater than 5E-05, otherwise, constituent not selected as COPC.

Constituents selected as COPCs are indicated by shading.

COPC = Chemical of Potential Concern

HI = Hazard Index

J = Estimated Value

ug/L = micrograms per liter

NA = Not available/not applicable

^a Corresponding Hazard Index equals maximum detected concentration divided by the RSL divided by the acceptable risk level.

^b Corresponding Cancer Risk equals maximum detected concentration divided by the RSL divided by the acceptable risk level.

 $^{^{\}rm c} \ {\rm Cumulative} \ {\rm Corresponding} \ {\rm Hazard} \ {\rm Index} \ {\rm equals} \ {\rm sum} \ {\rm of} \ {\rm Corresponding} \ {\rm Hazard} \ {\rm Indices} \ {\rm for} \ {\rm each} \ {\rm constituent}.$

^d Cumulative Corresponding Cancer Risk equals sum of Corresponding Cancer Risks for each constituent.

TABLE 2.13b

Risk Ratio Screening for Groundwater, 95% UCL Concentration Camp Johnson Site 85 MCB Camp Lejeune, North Carolina

Analyte	Detection Frequency	95%	% UCL	95% UCL Rationale	Tap Water RSL	Acceptable Risk Level	Corresponding Hazard Index ^a	Corresponding Cancer Risk ^b	Target Organ
Volatile Organic Compounds (ug/L)									
Chloroform	2 / 9	8.1E+00	95% KM-t	4	1.9E-01	1E-06	NA	4E-05	NA
Methylene Chloride	2 / 9	1.9E+02	Max	4, 5	4.8E+00	1E-06	NA	4E-05	NA
Metals (ug/L)									
Chromium	2 / 9	1.9E+01	Max	4, 5	4.3E-02	1E-06	NA	4E-04	NA
Lead	3 / 9	1.0E+01	Mean	6	NA	NA	NA	NA	Gastrointestinal
Cumulative Corresponding Hazard Index ^c	•						0.0		
Cumulative Corresponding Cancer Risk ^a								5E-04	
							Total	Gastrointestinal HI =	NA

Notes:

Constituent selected as COPC if it contributes to an overall Hazard Index by target organ greater than 0.5 or Cumulative Corresponding Cancer Risk greater than 5E-05, otherwise, constituent not selected as COPC.

Constituents selected as COPCs are indicated by shading.

COPC = Chemical of Potential Concern

HI = Hazard Index

NA = Not available/not applicable.

ug/L = micrograms per liter

ProUCL, Version 4.00.05 used to determine distribution of data and calculate 95% UCL, following recommendations in users guide (USEPA. March 2010. ProUCL, Version 4.0. Prepared by Lockheed Martin Environmental Services).

Options: Maximum detected concentration (Max); 95% Kaplan-Meier (t) UCL (95% KM-t); Arithmetic Mean (Mean)

Upper Confidence Limit (UCL) Rationale:

- (1) Shapiro-Wilk W Test/Lilliefors test indicates data are log-normally distributed.
- (2) Shapiro-Wilk W Test/Lilliefors indicates data are normally distributed.
- (3) Test indicates data are gamma distributed.
- (4) Distribution tests are inconclusive
- (5) Max value used because 95% UCL greater than max.
- (6) Lead evaluated using arithmetic mean concentration in lead models, therefore, arithmetic mean concentration presented here.

^a Corresponding Hazard Index equals 95% UCL concentration divided by the RSL divided by the acceptable risk level.

^b Corresponding Cancer Risk equals 95% UCL concentration divided by the RSL divided by the acceptable risk level

^c Cumulative Corresponding Hazard Index equals sum of Corresponding Hazard Indices for each constituent.

 $^{^{\}rm d}\, {\rm Cumulative}\, {\rm Corresponding}\, {\rm Cancer}\, {\rm Risk}\, {\rm equals}\, {\rm sum}\, {\rm of}\, {\rm Corresponding}\, {\rm Cancer}\, {\rm Risks}\, {\rm for}\, {\rm each}\, {\rm constituent}.$



Table F-1 ERS Surface Soil Screen for UXO-20 Camp Johnson Consutrcion Area Focused PA/SI

MCB Camp Lejeune, North Carolina

Chemical	Range of Non-Detect Values	Frequency of Detection	Maximum Concentration Detected	Sample ID of Maximum Detected Concentration	Screening Value	Frequency of Exceedance ¹	Maximum HQ	Arithmetic Mean Concentration	Mean HQ	2 x Mean Background	Exceeds 2 x Mean Background?	Supplemental Screening Value	Supplemental Screening Value Source	Supplemental Screening Value HQ		Rationale
Inorganics (MG/KG)																
Antimony	1.50 - 17.8	16 / 214	0.49	CJCA-SS163-09C	0.27	3 / 214	1.8	1.04	3.85	0.447	Yes				No	Within range of background
Arsenic	1.60 - 17.8	201 / 214	6.90	CJCA-SS136-09C	18.0	0 / 214	0.38	1.39	0.08	0.626	Yes				No	HQ less than one, detected
Copper	0.83 - 8.90	203 / 214	26.1	CJCA-SS033-09C	28.0	0 / 214	0.93	1.58	0.06	4.83	Yes				No	HQ less than one, detected
Lead		214 / 214	115	CJCA-SS033-09C	11.0	25 / 214	10.5	7.86	0.71	12.3	Yes	50	Region 4 (EPA, 2001)	2.3		Low frequency and magnitude of exceedance based on supplemental screening value.
Zinc	1.70 - 17.1	158 / 214	117	CJCA-SS041-09C	46.0	3 / 214	2.5	5.74	0.12	10.8	Yes					Low frequency and magnitude of exceedance. Mean HQ less than one.

NOTES

1 - Count of detected samples exceeding or equaling Screening Value

HQ - Hazard Quotient
MG/KG - Milligrams per kilogram NSV - No Screening Value Generated by: Sara Kent

Checked by: Kelly Taylor

Table F-2
ERS Subsurface Soil Screen for UXO-20
Camp Johnson Consutrcion Area
Focused PA/SI

MCB Camp Lejeune, North Carolina

Chemical	Range of Non-Detect Values	Frequency of Detection	Maximum Concentration Detected	Sample ID of Maximum Detected Concentration	Screening Value	Frequency of Exceedance ¹	Maximum Hazard Quotient	Arithmetic Mean Concentration	Mean Hazard Quotient	2 x Mean Background	Exceeds 2 x Mean Background?	Retain?	Rationale
Inorganics (MG/KG)													
Antimony	1.50 - 3.50	1 / 67	0.21	CJCA-SB02-2-6-09C	0.27	0 / 67	0.78	0.88	3.25	0.36	No	No	Consistent with background
Arsenic	1.50 - 3.00	59 / 67	24.8	CJCA-SB78-4-6-09C	18.0	4 / 67	1.38	5.94	0.33	2.12	Yes	No	Low magnitude and frequency of exceedance
Copper	1.50 - 2.70	62 / 67	6.90	CJCA-SB09-2-4-09C	28.0	0 / 67	0.25	2.10	0.08	2.56	Yes	No	HQ less than one, detected
Lead		67 / 67	17.3	CJCA-SB60-4-6-09C	11.0	24 / 67	1.57	8.34	0.76	8.49	Yes	No	Within background range
Zinc	3.70 - 4.80	39 / 67	49.0	CJCA-SB09-2-4-09C	46.0	1 / 67	1.07	5.29	0.11	6.59	Yes	No	Low magnitude and frequency of exceedance

NOTES

1 - Count of detected samples exceeding or equaling Screening Value

MG/KG - Milligrams per kilogram

HQ - Hazard Quotient

NSV - No Screening Value

Generated by: Sara Kent

Checked by: Kelly Taylor

Table F-3ERS Groundwater Screen for UXO-20
Camp Johnson Consutrcion Area
Focused PA/SI

MCB Camp Lejeune, North Carolina

Chemical	Range of Non-Detect Values	Frequency of Detection	Maximum Concentration Detected	Sample ID of Maximum Detected Concentration	Screening Value ¹	Frequency of Exceedance ²	Maximum Hazard Quotient	Arithmetic Mean Concentration	Mean Hazard Quotient	2 x Mean Background	Maximum Exceeds 2 x Mean Background?	Supplemental Screening Value	Supplemental Screening Value Source	Supplemental Screening Value Maximum HQ	Retain?	Rationale
Inorganics (UG/L)																
Antimony	20.0 - 100	0 / 37			NSV	/	NSV	11.1	NSV	3.28		160	TCEQ, 2006 ³	0.625	No	Supplemental HQ less than one
Arsenic	20.0 - 20.0	12 / 37	9.40	CJCA-TW27-09C	36.0	0 / 37	0.26	8.05	0.22	5.77	Yes				No	Within range of background
Copper	20.0 - 100	12 / 37	10.4	CJCA-TW17-09C	3.10	10 / 37	3.35	9.58	3.09	2.76	Yes				No	Within range of background
Lead	20.0 - 20.0	12 / 37	19.1	CJCA-TW01-09C	8.10	4 / 37	2.36	8.95	1.10	2.80	Yes				No	Within range of background
Zinc	250 - 250	36 / 37	160	CJCA-TW17-09C	81.0	4 / 37	1.98	36.0	0.44	42.1	Yes				No	Within range of background
Dissolved Metals (UG/L	_)															
Antimony, Dissolved	20.0 - 20.0	0 / 12			NSV	/	NSV	10.0	NSV	3.28		160	TCEQ, 2006 ³	0.125	No	Supplemental HQ less than one
Arsenic, Dissolved	20.0 - 20.0	1 / 12	4.90	CJCA-TW36-09C	36.0	0 / 12	0.14	9.58	0.27	5.77	No				No	Consistent with background
Copper, Dissolved	20.0 - 20.0	2 / 12	3.60	CJCA-TW28-09C	3.10	2 / 12	1.16	8.89	2.87	2.76	Yes				No	Within range of background
Lead, Dissolved	20.0 - 20.0	2 / 12	2.00	CJCA-TW01-09C	8.10	0 / 12	0.25	8.67	1.07	2.80	No				No	Within range of background
Zinc, Dissolved	50.0 - 50.0	9 / 12	82.3	CJCA-TW17-09C	81.0	1 / 12	1.0	31.9	0.4	42.1	Yes				No	Within range of background

NOTES

- 1 Marine screening values
- 2 Count of detected samples exceeding or equaling Screening Value
- 3 Based on freshwater
- HQ Hazard Quotient
- NSV No Screening Value
- UG/L Micrograms per liter
- Generated by: Sara Kent
- Checked by: Kelly Taylor

Table F-4
ERS Surface Soil Screen for Site 15
Camp Johnson Consutrcion Area
Focused PA/SI
MCB Camp Lejeune, North Carolina

MCB Camp Lejeune, North Carolina	1							T	1 1					T	1	T
Chemical	Range of Non- Detect Values		Maximum Concentration Detected	Sample ID of Maximum Detected Concentration	Screening Value	Frequency of Exceedance ¹	Maximum Hazard Quotient	Arithmetic Mean Concentration	Mean Hazard Quotient	2 x Mean Background	Maximum Exceeds 2 x Mean Background?	Supplemental Screening Value	Supplemental Screening Value Source	Supplemental Screening Value Maximum HQ	Retain?	Rationale
Volatile Organic Compounds (UG/KG)	<u> </u>			<u>l</u>				<u> </u>						<u> </u>		
1,1,1-Trichloroethane	4.20 - 9.10	0 / 12			100	/	0.091	2.98	0.03						No	HQ less than one, not detected
1,1,2,2-Tetrachloroethane	4.20 - 9.10	0 / 12			100	/	0.091	2.98	0.03						No	HQ less than one, not detected
1,1,2-Trichloro-1,2,2-trifluoroethane(Freon-113)	4.20 - 9.10	0 / 12			NSV	/	NSV	2.98	NSV						No	No screening value, not detected
1,1,2-Trichloroethane	4.20 - 9.10	0 / 12			100	/	0.091	2.98	0.03						No	HQ less than one, not detected
1,1-Dichloroethene	4.20 - 9.10	0 / 12		+	100	/	0.091	2.98	0.03						No	HQ less than one, not detected
1,2,4-Trichlorobenzene	4.20 - 9.10	0 / 12			10.0	/	0.091	2.98	0.03						No	HQ less than one, not detected
1,2-Dibromo-3-chloropropane	4.20 - 9.10	0 / 12			NSV	/	NSV	2.98	NSV							No screening value, not detected
1,2-Dibromoethane	4.20 - 9.10	0 / 12			NSV		NSV		NSV						No No	y ,
,						/		2.98 2.98							No No	No screening value, not detected
1,2-Dichlorobenzene	4.20 - 9.10	0 / 12			10.0	/	0.91		0.30						No	HQ less than one, not detected
1,2-Dichloroethane	4.20 - 9.10	0 / 12			400	/	0.023	2.98	0.007						No	HQ less than one, not detected
1,2-Dichloropropane	4.20 - 9.10	0 / 12			700,000	/	1.30E-05	2.98	4.250E-06						No	HQ less than one, not detected
1,3-Dichlorobenzene	4.20 - 9.10	0 / 12			10.0	/	0.91	2.98	0.30						No	HQ less than one, not detected
1,4-Dichlorobenzene	4.20 - 9.10	0 / 12			10.0	/	0.91	2.98	0.30						No	HQ less than one, not detected
2-Butanone	8.50 - 12.0	7 / 12	40.0	IR15-SS08-00-01-09C	NSV	/	NSV	11.7	NSV			89,600	Buchman, 2008	4.46E-04	No	Supplemental HQ less than one, common Lab contaminant
2-Hexanone	8.50 - 18.0	0 / 12			NSV	/	NSV	6.00	NSV			-			No	No screening value, not detected
4-Methyl-2-pentanone	8.50 - 18.0	0 / 12			NSV	/	NSV	6.00	NSV						No	No screening value, not detected
Acetone	11.0 - 11.0	12 / 13	1,700	IR15-SS08-00-01-09C	NSV	/	NSV	285	NSV			2500	Buchman, 2008	6.80E-01	No	Supplemental HQ less than one, common Lab contaminant
Benzene	4.20 - 9.10	0 / 12			50.0	/	0.18	2.98	0.06						No	HQ less than one, not detected
Bromodichloromethane	4.20 - 9.10	0 / 12			NSV	/	NSV	2.98	NSV						No	No screening value, not detected
Bromoform	4.20 - 9.10	0 / 12			NSV	/	NSV	2.98	NSV						No	No screening value, not detected
Bromomethane	5.40 - 12.0	0 / 12			NSV	/	NSV	4.30	NSV						No	No screening value, not detected
Carbon disulfide	4.20 - 9.10	0 / 10			NSV	/	NSV	2.98	NSV						No	No screening value, not detected
Carbon tetrachloride	4.20 - 9.10	0 / 12			1,000,000	/	9.10E-06	2.98	2.975E-06						No	HQ less than one, not detected
Chlorobenzene	4.20 - 9.10	0 / 12			50.0	/	0.18	2.98	0.06						No	HQ less than one, not detected
Chloroethane	5.40 - 14.0	0 / 12			100	/	0.14	4.63	0.046						No	HQ less than one, not detected
Chloroform	4.20 - 9.10	1 / 12	5.20	IR15-SS01-00-01-09C	1.00	1 / 12	5.20	3.17	3.17						No	Common lab contaminant, few VOCs detected
Chloromethane	5.40 - 14.0	0 / 12			NSV	/	NSV	4.63	NSV						No	No screening value, not detected
cis-1,2-Dichloroethene	4.20 - 9.10	0 / 12			NSV	/	NSV	2.98	NSV						No	No screening value, not detected
cis-1,3-Dichloropropene	4.20 - 9.10	0 / 12			NSV	/	NSV	2.98	NSV						No	No screening value, not detected
Cyclohexane	4.20 - 9.10	0 / 12			100	/	0.091	2.98	0.03						No	HQ less than one, not detected
Dibromochloromethane	4.20 - 9.10	0 / 12			NSV	/	NSV	2.98	NSV						No	No screening value, not detected
Dichlorodifluoromethane (Freon-12)	4.20 - 9.10	0 / 12			NSV	/	NSV	2.98	NSV						No	No screening value, not detected
Ethylbenzene	4.20 - 9.10				50.0	/	0.18	2.98	0.06						No	HQ less than one, not detected
Isopropylbenzene	4.20 - 9.10	0 / 12			NSV	/	NSV	2.98	NSV						No	No screening value, not detected
Methyl acetate	4.20 - 9.10	5 / 13	2,100	IR15-SS08-00-01-09C	NSV	/	NSV	167	NSV						No	Uncertainty, No screening value
Methylcyclohexane	4.20 - 9.10	0 / 12			NSV	/	NSV	2.98	NSV						No	No screening value, not detected
Methylene chloride	5.40 - 14.0	0 / 12			2,000	/	0.0070	4.63	0.002						No	HQ less than one, not detected
Methyl-tert-butyl ether (MTBE)	4.20 - 9.10	0 / 12			NSV	/	NSV	2.98	NSV						No	No screening value, not detected
Styrene	4.20 - 9.10	0 / 12			100	/	0.091	2.98	0.03						No	HQ less than one, not detected
Tetrachloroethene	4.20 - 9.10	0 / 12			10.0	/	0.91	2.98	0.30						No	HQ less than one, not detected
Toluene	4.20 - 9.10	1 / 12	10.0	IR15-SS08-00-01-09C	50.0	0 / 12	0.20	3.52	0.07						No	HQ less than one, detected
trans-1,2-Dichloroethene	4.20 - 9.10	0 / 12			100	/	0.091	2.98	0.07						No	HQ less than one, not detected
trans-1,3-Dichloropropene	4.20 - 9.10	0 / 12			NSV	/	NSV	2.98	NSV						No	No screening value, not detected
Trichloroethene	4.20 - 9.10	0 / 12			1.00	/	9.10	2.98	2.98						No	Not detected
Trichlorofluoromethane(Freon-11)	4.20 - 9.10	0 / 12			NSV	/	NSV	2.98	NSV						No	No screening value, not detected
Vinyl chloride	5.40 - 14.0	0 / 12			10.0	/	1.40	4.63	0.46						No	Not detected
Xylene, total	4.20 - 9.10	0 / 12			50.0	/	0.18	2.98	0.06						No	HQ less than one, not detected
Semivolatile Organic Compounds (UG/KG)						<u> </u>	2.10		2,00		1			I		
1,1-Biphenyl	170 - 400	0 / 15			60,000	/	0.0067	125	0.002						No	HQ less than one, not detected
2,2'-Oxybis(1-chloropropane)	170 - 400	0 / 15			NSV	/	NSV	125	NSV						No	No screening value, not detected
2,4,5-Trichlorophenol	170 - 400	0 / 15			4,000	/	0.10	125	0.031						No	HQ less than one, not detected
2, 40 monorophonor	1,0 400	0 / 10			1,000	'	0.10	120	0.001		1			İ	140	The 1000 than one, not detected

Table F-4
ERS Surface Soil Screen for Site 15
Camp Johnson Consutrcion Area
Focused PA/SI

	Focused PA/SI MCB Camp Lejeune, North Carolina															
Address	, , .	3		Concentration				Hazard				1.1	Screening Value	Screening Value	Retain?	Rationale
Comparison 15 - 98 277	2,4,6-Trichlorophenol	360 - 400	0 / 5			10,000	/	0.040	189	0.019	 				No	HQ less than one, not detected
A Segretary 17 100 1 15	2,4-Dichlorophenol	170 - 400	0 / 15			3.00	/	133	125	42	 				No	Not detected
Additional color	2,4-Dimethylphenol	170 - 400	0 / 15			NSV	/	NSV	125	NSV	 				No	No screening value, not detected
25-Processor 170 60 67 71	2,4-Dinitrophenol	170 - 1,000	0 / 15			20,000	/	0.050	220	0.011	 				No	HQ less than one, not detected
Company Comp	2,4-Dinitrotoluene	170 - 400	0 / 15			NSV	/	NSV	125	NSV	 				No	No screening value, not detected
2.	2,6-Dinitrotoluene	170 - 400	0 / 15			NSV	/	NSV	125	NSV	 				No	No screening value, not detected
Mathemptories	2-Chloronaphthalene	170 - 400	0 / 15			1,000	/	0.40	125	0.12	 				No	HQ less than one, not detected
Abbigrose	2-Chlorophenol	170 - 400	0 / 15			10.0	/	40.0	125	12	 				No	Not detected
Street	2-Methylnaphthalene	170 - 400	0 / 15			29,000	/	0.014	125	0.004	 				No	HQ less than one, not detected
2 Non-Colombigness 196 60 9 9 9 9 90 90 90	2-Methylphenol	170 - 400	0 / 15			500	/	0.80	125	0.25	 				No	HQ less than one, not detected
Sept Supplement Ground G	2-Nitroaniline	170 - 400	0 / 15			NSV	/	NSV	125	NSV	 				No	No screening value, not detected
15-21 Contendent	2-Nitrophenol	170 - 400	0 / 15			NSV	/	NSV	125	NSV	 				No	No screening value, not detected
Mineral Mine	3- and 4-Methylphenol	730 - 800	0 / 5			NSV	/	NSV	384	NSV	 				No	No screening value, not detected
Edition Contemplated 173 - 1000 17 15	3,3'-Dichlorobenzidine	170 - 1,000	0 / 15			NSV	/	NSV	220	NSV	 				No	No screening value, not detected
Education of the Color	3-Nitroaniline	170 - 400	0 / 15			NSV	/	NSV	125	NSV	 				No	No screening value, not detected
Colora descriptions	4,6-Dinitro-2-methylphenol	170 - 1,000	0 / 15			NSV	/	NSV	220	NSV	 				No	No screening value, not detected
Community	4-Bromophenyl-phenylether	170 - 400	0 / 15			NSV	/	NSV	125	NSV	 				No	No screening value, not detected
Childrophysis 10 - 40	4-Chloro-3-methylphenol	170 - 400	0 / 15			NSV	/	NSV	125	NSV	 				No	No screening value, not detected
EAR-Information	4-Chloroaniline	170 - 400	0 / 15			20,000	/	0.020	125	0.006	 				No	HQ less than one, not detected
Fig.	4-Chlorophenyl-phenylether	170 - 400	0 / 15			NSV	/	NSV	125	NSV	 				No	No screening value, not detected
Hellingsheid 172 + 090 0 + 15	' ' '		0 / 10			500	/	0.42	92.5	0.19	 				No	HQ less than one, not detected
February 178 - 1790 0 7 5		170 - 400	0 / 15			NSV	/	NSV		NSV	 				No	No screening value, not detected
Acceptations	4-Nitrophenol	170 - 1,000	0 / 15			7,000	/	0.14		0.031	 				No	HQ less than one, not detected
Recognization	Acenaphthene	170 - 400	0 / 15			29,000	/	0.014	125	0.004	 				No	HQ less than one, not detected
Accordance	Acenaphthylene	170 - 400	0 / 15			29,000	/	0.014	125	0.004	 				No	HQ less than one, not detected
Parameter 170 -0.00 0 1/15 No Mode declared Parameter 170 -1.00 0 1/15 No Mode declared Parameter 170 No Mode declared Parameter 170 No Mode declared Parameter 170 No Mode declared Parameter 170 No Mode declared 170 No Mode declared 170 No Mode declared	Acetophenone	170 - 400	0 / 15			NSV	/	NSV	125	NSV	 				No	No screening value, not detected
Recrustlyphysearch	Anthracene	170 - 400	0 / 15			29,000	/	0.014	125	0.004	 				No	HQ less than one, not detected
Secret September Secret September Secret September Secret September Secret Se	Atrazine	170 - 400	0 / 15			0.050	/	8,000	125	2493	 				No	Not detected
	Benzaldehyde	170 - 1,000	0 / 15			NSV	/	NSV	220	NSV	 				No	No screening value, not detected
Betrack[h]Justrathere 35 0 - 400 0 / 15	Benzo(a)anthracene	35.0 - 400	0 / 15			1,100	/	0.36	75.4	0.069	 				No	HQ less than one, not detected
Betros(ght Sperylene 170 - 400 1 / 15 95.0 IR15 SS03 00-01-09C 1,100 0 / 15 0.086 125 0.11	Benzo(a)pyrene	35.0 - 400	0 / 15			1,100	/	0.36	75.4	0.069	 				No	HQ less than one, not detected
Bestros(photes) 170 - 400 0 / 15 1.100 0.36 125 0.11 No HO less than one, not date bis/2-Chloredrhy/methane 170 - 400 0 / 15 NSV NSV 125 NSV No No screening value, not de bis/2-Chloredrhy/methane 170 - 400 0 / 15 NSV NSV No No	Benzo(b)fluoranthene	35.0 - 400	0 / 15			1,100	/	0.36	75.4	0.069	 				No	HQ less than one, not detected
Disc/2-Chloroethylether	Benzo(g,h,i)perylene	170 - 400	1 / 15	95.0	IR15-SS03-00-01-09C	1,100	0 / 15	0.086	125	0.11	 				No	HQ less than one, detected
bisQ2-Chloroethylether 170 - 400 0 / 15 NSV NSV 125 NSV No No screening value, not de bisQ2-Chloroethylether 170 - 400 3 / 15 180 IR15-SS01-00-10-9C 100 2 / 15 1.80 132 1.32 No Low frequency and magnital buylbenzy/phthalate 170 - 400 1 / 15 190 IR15-SS01-00-10-9C 100 1 / 15 1.90 131 1.31 No Low frequency and magnital buylbenzy/phthalate 170 - 400 0 / 14 NSV NSV NSV 230 NSV No No screening value, not de Carbazole 240 - 380 0 / 15 NSV NSV NSV 112 NSV No No screening value, not de Chrysene 170 - 380 2 / 15 220 SWMU46-SM01-0-1 1,100 0 / 15 0.020 101 0.092 No HO less than one, detecte Dibenzofaran 170 - 400 0 / 15 NSV NSV NSV No HO less than one, detecte Din-butylphthalate 170 - 400 0 / 15 NSV NSV NSV No HO less than one, detecte Din-butylphthalate 170 - 400 0 / 15 NSV NSV NSV NSV No HO less than one, detected Din-butylphthalate 170 - 400 0 / 15 NSV NSV NSV NSV No HO less than one, detected Din-butylphthalate 170 - 400 0 / 15 NSV NSV NSV NSV No HO less than one, detected Din-butylphthalate 170 - 400 0 / 15 NSV NSV NSV NO NO detected Din-butylphthalate 170 - 400 0 / 15 NSV NSS NSV NO NO detected Din-butylphthalate 170 - 400 0 / 15 NSV NSV NSV NSV NO NO detected NSS than one, not detected NSS than one, not detected NSS than one, not detected NSS	Benzo(k)fluoranthene	170 - 400	0 / 15			1,100	/	0.36	125	0.11	 				No	HQ less than one, not detected
Dis(2-Ehrythexyl)phthalate	bis(2-Chloroethoxy)methane	170 - 400	0 / 15			NSV	/	NSV	125	NSV	 				No	No screening value, not detected
Butylbenzylphthalate	bis(2-Chloroethyl)ether	170 - 400	0 / 15			NSV	/	NSV	125	NSV	 				No	No screening value, not detected
Caprolaciam	bis(2-Ethylhexyl)phthalate	180 - 400	3 / 15	180	IR15-SS01-00-01-09C	100	2 / 15	1.80	132	1.32	 				No	Low frequency and magnitude of exceedance
Carbazole 24.0 - 380 0 / 15 NSV / NSV 112 NSV No No Screening value, not de Chrysene 170 - 380 2 / 15 22.0 SWMU46-SM01-0-1 1,100 0 / 15 0.020 101 0.092 No HO less than one, detecte Dibenz(a,h)anthracene 35.0 - 400 1 / 15 64.0 IR15-SS03-0-01-0PC 1,100 0 / 15 0.058 78.4 0.071 No HO less than one, detecte Dibenzofuran 170 - 400 0 / 15 NSV NSV NSV 125 NSV No No No screening value, not de Dienzofuran 170 - 400 0 / 15 100,000 0.0040 125 0.001 NO HO less than one, detecte Dibenzofuran 170 - 400 0 / 15 100,000 0.0040 125 0.001 NO HO less than one, detecte Dibenzofuran 170 - 400 0 / 15 100,000 0.0040 125 0.001 NO HO less than one, not detecte Di-n-butylphthalate 170 - 400 0 / 15 200,000 0.0020 125 0.001 NO HO less than one, not detecte Di-n-butylphthalate 170 - 400 0 / 15 200,000 0 / 15 7.50E-04 99.9 4.997E-04 NO HO less than one, not detecte Di-n-butylphthalate 170 - 400 0 / 15 100 0.015 100 0.012 125 0.001 NO HO less than one, not detecte Fluorenie 170 - 400 0 / 15 1,100 4.00 125 1.25 NO NO HO less than one, not detected Fluorene 170 - 400 0 / 15 25.00 1.100	Butylbenzylphthalate	170 - 400	1 / 15	190	IR15-SS01-00-01-09C	100	1 / 15	1.90	131	1.31	 				No	Low frequency and magnitude of exceedance
Chrysene	Caprolactam	170 - 1,000	0 / 14			NSV	/	NSV	230	NSV	 				No	No screening value, not detected
Dibenzofuran 35.0 - 400 1 / 15 64.0 IR15-SS03-00-01-OPC 1,100 0 / 15 0.058 78.4 0.071 No HO less than one, detected	Carbazole	24.0 - 380	0 / 15			NSV	/	NSV	112	NSV	 				No	No screening value, not detected
Dibenzofuran 170 - 400 0 / 15 NSV NSV NSV 125 NSV No No screening value, not determined by the product of the production of the product of the p	Chrysene	170 - 380	2 / 15	22.0	SWMU46-SM01-0-1	1,100	0 / 15	0.020	101	0.092	 				No	HQ less than one, detected
Diethylphthalate	Dibenz(a,h)anthracene	35.0 - 400	1 / 15	64.0	IR15-SS03-00-01-09C	1,100	0 / 15	0.058	78.4	0.071	 				No	HQ less than one, detected
Dimethyl phthalate	Dibenzofuran	170 - 400	0 / 15			NSV	/	NSV	125	NSV	 				No	No screening value, not detected
Di-n-butyliphthalate	Diethylphthalate	170 - 400	0 / 15			100,000	/	0.0040	125	0.001	 				No	HQ less than one, not detected
Di-n-octylphthalate 170 - 400 0 / 15 100 / 4.00 125 1.25 No Not detected Fluoranthene 24.0 - 380 0 / 15 1,100 / 0.35 112 0.10 No HQ less than one, not detected Fluorene 170 - 400 0 / 15 29,000 / 0.014 125 0.004 No HQ less than one, not detected Hexachlorobenzene 170 - 400 0 / 15 160 125 50 No No Not detected Hexachlorobutadiene 170 - 400 0 / 15 150 125 NSV No No No screening value, not detected Hexachlorocyclopentadiene 170 - 1,000 0 / 15 NSV 125 NSV No	Dimethyl phthalate	170 - 400	0 / 15			200,000	/	0.0020	125	0.001	 				No	HQ less than one, not detected
Di-noctylphthalate 170 - 400 0 / 15 100 4.00 125 1.25 No Not detected Fluoranthene 24.0 - 380 0 / 15 1,100 / 0.35 112 0.10 No HQ less than one, not detected Fluorene 170 - 400 0 / 15 29,000 / 0.014 125 0.004 No HQ less than one, not detected Hexachlorobenzene 170 - 400 0 / 15 2.50 / NSV No Not detected Hexachlorobutadiene 170 - 400 0 / 15 NSV NSV NSV No No detected Hexachlorobutadiene 170 - 400 0 / 15 NSV NSV	Di-n-butylphthalate			150	IR15-SS10-00-01-09C	200,000	0 / 15			4.997E-04	 				No	HQ less than one, detected
Fluoranthene 24.0 - 380 0 / 15 1,100 / 0.35 112 0.10 No HQ less than one, not determined Hexachlorobenzene 170 - 400 0 / 15 No No HQ less than one, not determined Hexachlorobenzene 170 - 400 0 / 15 No No Not detected Hexachlorobutadiene 170 - 400 0 / 15 NSV / NSV 125 NSV NO No No screening value, not determined HQ less than one, not determi	Di-n-octylphthalate					100					 				No	
Hexachlorobenzene 170 - 400 0 / 15 2.50 / 160 125 50 No Not detected Hexachlorobutadiene 170 - 400 0 / 15 NSV NSV NSV No No screening value, not detected Hexachlorocyclopentadiene 170 - 1,000 0 / 15 NSV 125 NSV No No screening value, not detected Hexachlorocyclopentadiene 170 - 1,000 0 / 15 0.10 220 0.022 No HQ less than one, not detected	Fluoranthene	24.0 - 380	0 / 15			1,100	/	0.35	112	0.10	 				No	HQ less than one, not detected
Hexachlorobenzene 170 - 400 0 / 15 2.50 / 160 125 50 No Not detected Hexachlorobutadiene 170 - 400 0 / 15 NSV NSV NSV No No screening value, not detected Hexachlorocyclopentadiene 170 - 1,000 0 / 15 10,000 0.10 220 0.022 No HQ less than one, not detected	Fluorene						/	0.014	125	0.004	 				No	HQ less than one, not detected
Hexachlorobutadiene 170 - 400 0 / 15 NSV NSV NSV NSV NSV NSV NSV NSV NSV NSV NSV NSV	Hexachlorobenzene					2.50	/	160	125	50	 				No	-
Hexachlorocyclopentadiene 170 - 1,000 0 / 15 10,000 / 0.10 220 0.022 No HQ less than one, not determined the support of the suppo										NSV	 				ł	No screening value, not detected
				1				1		+	 					HQ less than one, not detected
											 				ł	-
				52.0	IR15-SS03-00-01-09C		0 / 15				 				No	HQ less than one, detected

Table F-4
ERS Surface Soil Screen for Site 15
Camp Johnson Consutrcion Area
Focused PA/SI
MCR Camp Leieune North Carolina

MCB Camp Lejeune, North Carolina			Г						1 1		1	T	1	1	Т	1
Chemical	Range of Non- Detect Values	Frequency of Detection	Maximum Concentration Detected	Sample ID of Maximum Detected Concentration	Screening Value	Frequency of Exceedance ¹	Maximum Hazard Quotient	Arithmetic Mean Concentration	Mean Hazard Quotient	2 x Mean Background	Maximum Exceeds 2 x Mean Background?	Supplemental Screening Value	Supplemental Screening Value Source	Supplemental Screening Value Maximum HQ	Retain?	Rationale
Isophorone	35.0 - 400	0 / 15			NSV	/	NSV	75.4	NSV						No	No screening value, not detected
Naphthalene	170 - 400	0 / 15			29,000	/	0.014	125	0.004						No	HQ less than one, not detected
n-Nitroso-di-n-propylamine	35.0 - 400	0 / 15			NSV	/	NSV	75.4	NSV						No	No screening value, not detected
n-Nitrosodiphenylamine	170 - 400	0 / 15			20,000	/	0.020	125	0.006						No	HQ less than one, not detected
Nitrobenzene	170 - 400	0 / 15			40,000	/	0.010	125	0.003						No	HQ less than one, not detected
Pentachlorophenol	170 - 1,000	0 / 15			2,100	/	0.48	220	0.10						No	HQ less than one, not detected
Phenanthrene	170 - 400	0 / 15			29,000	/	0.014	125	0.004						No	HQ less than one, not detected
Phenol	170 - 400	0 / 15			50.0	/	8.00	125	2.49						No	Not detected
Pyrene	28.0 - 380	0 / 15			1,100	/	0.35	112	0.10						No	HQ less than one, not detected
Pesticide/Polychlorinated Biphenyls (U	G/KG)	·L			-									l	ı	· ·
4,4'-DDD	1.70 - 2.10	4 / 15	7.50	IR15-SS01-00-01-09C	21.0	0 / 15	0.36	1.70	0.081						No	HQ less than one, detected
4,4'-DDE	1.80 - 2.00	10 / 15	25.0	IR15-SS01-00-01-09C	21.0	3 / 15	1.19	7.75	0.37						No	Low magnitude of exceedance
4,4'-DDT	1.80 - 2.00	9 / 15	24.0	IR15-SS10-00-01-09C	21.0	2 / 15	1.14	6.39	0.30						No	Low magnitude of exceedance
Aldrin	1.70 - 2.10	0 / 15			2.50	/	0.84	0.94	0.38						No	HQ less than one, not detected
alpha-BHC	1.70 - 2.10	0 / 15			2.50	/	0.84	0.94	0.38						No	HQ less than one, not detected
alpha-Chlordane	1.70 - 2.10	3 / 15	7.40	IR15-SS01-00-01-09C	100	0 / 15	0.074	1.39	0.014						No	HQ less than one, detected
Aroclor-1016	17.0 - 21.0	0 / 15		11(13-3301-00-01-07C	20.0	/	1.05	9.30	0.47						No	Not detected
Aroclor-1010	17.0 - 21.0	0 / 15			20.0	/	1.05	9.30	0.47						No	Not detected
	17.0 - 21.0	0 / 15			20.0	/	1.05	9.30	0.47						No	Not detected
Aroclor 1242									-							
Aroclor-1242	17.0 - 21.0	0 / 15			20.0	/	1.05	9.30	0.47						No No	Not detected
Aroclor-1248	17.0 - 21.0	0 / 15			20.0	/	1.05	9.30	0.47						No	Not detected
Aroclor-1254	17.0 - 21.0	1 / 15	360	IR15-SS01-00-01-09C	20.0	1 / 15	18.0	32.7	1.63						Yes	Elevated HQ and undefined contamination
Aroclor-1260	17.0 - 21.0	0 / 15			20.0	/	1.05	9.30	0.47						No	Not detected
beta-BHC	1.70 - 2.10	0 / 15			1.00	/	2.10	0.94	0.94						No	Not detected
delta-BHC	1.70 - 2.10	0 / 15			100	/	0.021	0.94	0.009						No	HQ less than one, not detected
Dieldrin	1.70 - 2.10	2 / 15	1.70	IR15-SS09-00-01-09C	4.90	0 / 15	0.35	0.99	0.20						No	HQ less than one, detected
Endosulfan I	1.70 - 2.10	0 / 15			100	/	0.021	0.94	0.009						No	HQ less than one, not detected
Endosulfan II	1.70 - 2.10	2 / 15	1.20	SWMU46-SM08-0-1	100	0 / 15	0.012	0.96	0.01						No	HQ less than one, detected
Endosulfan sulfate	1.70 - 2.10	4 / 15	38.0	SWMU46-SM03-0-1	100	0 / 15	0.38	7.68	0.077						No	HQ less than one, detected
Endrin	1.70 - 2.10	1 / 15	1.70	SWMU46-SM01-0-1	1.00	1 / 15	1.70	0.99	0.99						No	Low frequency and magnitude of exceedance
Endrin aldehyde	1.70 - 2.10	0 / 15			100	/	0.021	0.94	0.009						No	HQ less than one, not detected
Endrin ketone	1.70 - 2.10	4 / 15	18.0	SWMU46-SM05-0-1	100	0 / 15	0.18	3.93	0.039						No	HQ less than one, detected
gamma-BHC (Lindane)	1.70 - 2.10	0 / 15			0.050	/	42.0	0.94	19						No	Not detected
gamma-Chlordane	1.70 - 2.10	3 / 15	8.60	IR15-SS01-00-01-09C	100	0 / 15	0.086	1.42	0.014						No	HQ less than one, detected
Heptachlor	1.70 - 2.10	0 / 15			100	/	0.021	0.94	0.009						No	HQ less than one, not detected
Heptachlor epoxide	1.70 - 2.10	0 / 15			100	/	0.021	0.94	0.009						No	HQ less than one, not detected
Methoxychlor	1.70 - 7.80	1 / 15	4.60	SWMU46-SM01-0-1	100	0 / 15	0.046	1.94	0.019						No	HQ less than one, detected
Toxaphene	35.0 - 100	0 / 15			100	/	1.00	28.3	0.28						No	Not detected
Inorganics (MG/KG)	L	·L	l									L		l	I	1
Aluminum		10 / 10	12,500	IR15-SS03-00-01-09C	50.0	10 / 10	250	4,866	97	5,487	Yes				No	Within background range
Antimony	1.50 - 1.60	4 / 10	0.64	IR15-SS01-00-01-09C	0.27	4 / 10	2.37	0.62	2.29	0.447	Yes				No	Within background range
Arsenic		16 / 16	4.70	IR15-SS03-00-01-09C	18.0	0 / 16	0.26	1.42	0.079	0.626	Yes				No	HQ less than one, detected
Barium		16 / 16	34.3	IR15-SS01-00-01-09C	330	0 / 16	0.10	11.1	0.077	14.5	Yes				No	HQ less than one, detected
Beryllium	0.15 - 0.18	5 / 10	0.14	IR15-SS03-00-01-09C	21.0	0 / 10	0.0067	0.082	0.004	0.103	Yes				No	Within background range
Cadmium	0.011 - 0.49	9 / 16	0.61	IR15-SS01-00-01-09C	0.36	1 / 16	1.69	0.062	0.004	0.103	Yes				No	Low frequency and magnitude of exceedance
Calcium ²		10 / 10		IR15-SS01-00-01-09C	NSV	/	NSV		1	6360					+	· · · · · ·
			36,500					7,241	NSV		Yes				No	Macronutrient
Chromium		16 / 16	17.2	IR15-SS03-00-01-09C	26.0	0 / 16	0.66	5.61	0.22	6.05	Yes				No	HQ less than one, detected
Cobalt	0.38 - 0.45	8 / 10	0.57	IR15-SS01-00-01-09C	13.0	0 / 10	0.044	0.27	0.021	0.294	Yes				No	HQ less than one, detected
Copper		10 / 10	42.1	IR15-SS01-00-01-09C	28.0	1 / 10	1.50	7.61	0.27	4.83	Yes				No	Low frequency and magnitude of exceedance
Iron		10 / 10	10,200	IR15-SS03-00-01-09C	200	10 / 10	51.0	3,676	18	3245	Yes				No	Within background range
																Low frequency (1/16) and magnitude of exceedance based on supplemental screening
Lead		16 / 16	70.3	IR15-SS01-00-01-09C	11.0	7 / 16	6.39	14.3	1.30	12.3	Yes	50	Region 4 (EPA, 2001)	1.4	No	value

Table F-4

ERS Surface Soil Screen for Site 15 Camp Johnson Consutrcion Area Focused PA/SI

MCB Camp Lejeune, North Carolina

Chemical	Range of Non- Detect Values	Frequency of Detection	Maximum Concentration Detected	Sample ID of Maximum Detected Concentration	Screening Value	Frequency of Exceedance ¹	Maximum Hazard Quotient	Arithmetic Mean Concentration	Mean Hazard Quotient	2 x Mean Background	Maximum Exceeds 2 x Mean Background?	Supplemental Screening Value	Supplemental Screening Value Source	Supplemental Screening Value Maximum HQ	Retain?	Rationale
Magnesium ²		10 / 10	796	IR15-SS03-00-01-09C	NSV	/	NSV	242	NSV	238	Yes				No	Macronutrient
Manganese		10 / 10	22.2	IR15-SS01-00-01-09C	220	0 / 10	0.10	10.0	0.045	13.7	Yes				No	Within background range
Mercury	0.015 - 0.039	7 / 16	0.51	IR15-SS01-00-01-09C	0.10	1 / 16	5.10	0.053	0.53	0.081	Yes				Yes	Elevated HQ and undefined contamination
Nickel		10 / 10	2.70	IR15-SS01-00-01-09C	38.0	0 / 10	0.071	1.31	0.034	1.21	Yes				No	HQ less than one, detected
Potassium ²	76.3 - 78.8	7 / 10	497	IR15-SS03-00-01-09C	NSV	/	NSV	203	NSV	116	Yes				No	Macronutrient
Selenium	1.50 - 1.80	7 / 16	0.56	SWMU46-SM08-0-1	0.52	1 / 16	1.08	0.61	1.18	0.563	No				No	Consistent with background
Silver	0.046 - 1.80	4 / 16	0.17	IR15-SS05-00-01-09C	4.20	0 / 16	0.040	0.48	0.11	0.14	Yes				No	Within background range
Sodium ²	188 - 202	5 / 10	68.7	IR15-SS03-00-01-09C	NSV	/	NSV	61.1	NSV	80.9	No				No	Macronutrient
Thallium	2.30 - 2.70	0 / 10			1.00	/	2.70	1.20	1.20	0.36					No	Not detected
Vanadium		10 / 10	22.3	IR15-SS03-00-01-09C	7.80	4 / 10	2.86	8.98	1.15	8.9	Yes				No	Within background range
Zinc	3.80 - 39.0	7 / 10	170	IR15-SS01-00-01-09C	46.0	1 / 10	3.70	27.6	0.60	10.8	Yes				No	Low frequency (1/10) and magnitude of exceedance. Mean HQ less than one. Only slightly greater than background range.

NOTES

1 - Count of detected samples exceeding or equaling Screening Value

2 - Macronutrient - Not considered to be a contaminant of potential concern (COPC)

HQ - Hazard Quotient

NSV - No Screening Value

MG/KG - Milligrams per kilogram

UG/KG - Micrograms per kilogram

Generated by: Sara Kent

Checked by: Kelly Taylor

Table F-5
ERS Subsurface Soil Screen for Site 15
Camp Johnson Consutrcion Area
Focused PA/SI

Focused PA/SI MCB Camp Lejeune, North Carolina																
mes camp sejeane, nour carema			Maximum				Maximum				Maximum		Supplemental	Supplemental		
	Range of Non-	Frequency of	Concentration	Sample ID of Maximum	Screening	Frequency of	Hazard	Arithmetic Mean	Mean Hazard	2 x Mean	Exceeds 2 x Mean	Supplemental	Screening Value	Screening Value		
Chemical	Detect Values	Detection	Detected	Detected Concentration	Value	Exceedance ¹	Quotient	Concentration	Quotient	Background	Background?	Screening Value	Source	Maximum HQ	Retain?	Rationale
Volatile Organic Compounds (UG/KG)																
1,1,1-Trichloroethane	1.60 - 2.40	0 / 8			100	/	0.024	0.93	0.009						No	HQ less than one, not detected
1,1,2,2-Tetrachloroethane	1.60 - 2.40	0 / 8			100	/	0.024	0.93	0.009						No	HQ less than one, not detected
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon-113)	1.60 - 2.40	0 / 8			NSV	/	NSV	0.93	NSV						No	No screening value, not detected
1,1,2-Trichloroethane 1,1-Dichloroethane	1.60 - 2.40 1.60 - 2.40	0 / 8			100 100	/	0.024	0.93 0.93	0.009						No No	HQ less than one, not detected HQ less than one, not detected
1,1-Dichloroethane	1.60 - 2.40	0 / 8			100	/	0.024	0.93	0.009						No	HQ less than one, not detected
1,2,4-Trichlorobenzene	1.60 - 2.40	4 / 9	2.50	IR15-SB07-2-4-09C	10.0	0 / 9	0.25	1.54	0.15						No	HQ less than one, detected
1,2-Dibromo-3-chloropropane	1.60 - 2.40	0 / 8			NSV	/	NSV	0.93	NSV						No	No screening value, not detected
1,2-Dibromoethane	1.60 - 2.40	0 / 8			NSV	/	NSV	0.93	NSV						No	No screening value, not detected
1,2-Dichlorobenzene	1.60 - 2.40	0 / 8			10.0	/	0.24	0.93	0.093						No	HQ less than one, not detected
1,2-Dichloroethane	1.60 - 2.40	0 / 8			400	/	0.0060	0.93	0.002						No	HQ less than one, not detected
1,2-Dichloropropane	1.60 - 2.40	0 / 8			700,000	/	3.43E-06	0.93	0.000						No	HQ less than one, not detected
1,3-Dichlorobenzene	1.60 - 2.40	3 / 9	1.60	IR15-SB07-2-4-09C	10.0	0 / 9	0.16	1.08	0.108						No	HQ less than one, detected
1,4-Dichlorobenzene	1.60 - 2.40	2 / 9	1.60	IR15-SB07-2-4-09C	10.0	0 / 9	0.16	1.04	0.104						No	HQ less than one, detected
		0.40	04.0	1045 0007 0 4 000		,	1101	5.04	1101			00.400		2245.04		Supplemental HQ less than one, common Lab
2-Butanone	3.10 - 4.80	3 / 9	21.0	IR15-SB07-2-4-09C	NSV	/	NSV	5.94	NSV			89,600	Buchman, 2008	2.34E-04	No No	contaminant Supplemental HO loss than one
2-Hexanone	3.10 - 4.80	2 / 9	4.10	IR15-SB07-2-4-09C	NSV	/	NSV	1.95	NSV			12,600	Buchman, 2008 Buchman, 2008	3.25E-04	No No	Supplemental HQ less than one Supplemental HQ less than one
4-Methyl-2-pentanone	3.10 - 4.80	1 / 9	1.70	IR15-SB09-2-7-09C	NSV	/	NSV	1.85	NSV			443,000	Buchman, 2008	3.84E-06	No	• • • • • • • • • • • • • • • • • • • •
Acetone	3.40 - 3.40	9 / 10	180	IR15-SB09-2-7-09C	NSV	/	NSV	49.3	NSV			2500	Buchman, 2008	7.20E-02	No	Supplemental HQ less than one, common Lab contaminant
Benzene	1.60 - 2.40	2 / 9	0.97	IR15-SB04-2-7-09C	50.0	0 / 9	0.019	0.88	0.018			255	Buchman, 2008	3.80E-03	No	Supplemental HQ less than one
Bromodichloromethane	1.60 - 2.40	0 / 8			NSV	/	NSV	0.93	NSV						No	No screening value, not detected
Bromoform	1.60 - 2.40	0 / 8			NSV	/	NSV	0.93	NSV						No	No screening value, not detected
Bromomethane	3.20 - 4.80	0 / 7			NSV	/	NSV	1.91	NSV						No	No screening value, not detected
Carbon disulfide	1.60 - 2.10	1 / 8	1.40	IR15-SB02-2-7-09C	NSV	/	NSV	0.96	NSV			94.1	Buchman, 2008	1.49E-02	No	Supplemental HQ less than one
Carbon tetrachloride	1.60 - 2.40	0 / 8			1,000,000	/	2.40E-06	0.93	9.313E-07						No	HQ less than one, not detected
Chlorobenzene	1.60 - 2.40	1 / 9	2.60	IR15-SB09-2-7-09C	50.0	0 / 9	0.052	1.12	0.022						No	HQ less than one, detected
Chloroethane	3.20 - 4.80	0 / 7			100	/	0.048	1.91	0.019						No	HQ less than one, not detected
Chloroform	1.60 - 2.40	0 / 8			1.00	/	2.40	0.93	0.93						No	HQ less than one, not detected
Chloromethane	3.10 - 4.80	0 / 8			NSV	/	NSV	1.87	NSV						No	No screening value, not detected
cis-1,2-Dichloroethene	1.60 - 2.40	0 / 8			NSV	/	NSV	0.93	NSV						No	No screening value, not detected
cis-1,3-Dichloropropene Cyclohexane	1.60 - 2.40 1.60 - 2.40	0 / 8			NSV 100	/	NSV 0.024	0.93	NSV 0.009						No No	No screening value, not detected HQ less than one, not detected
Dibromochloromethane	1.60 - 2.40	0 / 8			NSV	/	NSV	0.93	NSV						No	No screening value, not detected
Dichlorodifluoromethane (Freon-12)	1.60 - 2.40	0 / 8			NSV	/	NSV	0.93	NSV						No	No screening value, not detected
Ethylbenzene	1.60 - 2.40	0 / 8			50.0	/	0.048	0.93	0.019						No	HQ less than one, not detected
Isopropylbenzene	1.60 - 4.20	0 / 8			NSV	/	NSV	1.21	NSV						No	No screening value, not detected
Methyl acetate	1.60 - 2.10	2 / 8	7.80	IR15-SB05-2-7-09C	NSV	/	NSV	2.08	NSV	-					No	Uncertainty, no screening value
Methylcyclohexane	1.60 - 2.40	0 / 8			NSV	/	NSV	0.93	NSV	-					No	No screening value, not detected
Methylene chloride	3.10 - 3.60	4 / 8	8.90	IR15-SB05-2-7-09C	2,000	0 / 8	0.0045	3.11	0.002						No	HQ less than one, detected
Methyl-tert-butyl ether (MTBE)	1.60 - 2.40	0 / 8			NSV	/	NSV	0.93	NSV						No	No screening value, not detected
Styrene	1.60 - 3.90	2 / 9	2.90	IR15-SB07-2-4-09C	100	0 / 9	0.029	1.52	0.015						No	HQ less than one, detected
Tetrachloroethene	1.60 - 2.40	1 / 9	1.50	IR15-SB09-2-7-09C	10.0	0 / 9	0.15	0.99	0.099						No	HQ less than one, detected
Toluene trans-1,2-Dichloroethene	1.60 - 2.40 1.60 - 2.40	3 / 9	2.90	IR15-SB07-2-4-09C	50.0 100	0 / 9	0.058 0.024	1.29 0.93	0.026	-					No No	HQ less than one, detected HQ less than one, not detected
trans-1,3-Dichloropropene	1.60 - 2.40	0 / 8			NSV	/	NSV	0.93	NSV						No	No screening value, not detected
Trichloroethene	1.60 - 2.40	0 / 8			1.00	/	2.40	0.93	0.93						No	Not detected
Trichlorofluoromethane(Freon-11)	1.60 - 2.40	0 / 8			NSV	/	NSV	0.93	NSV						No	No screening value, not detected
Vinyl chloride	3.10 - 4.80	0 / 8			10.0	/	0.48	1.87	0.19						No	HQ less than one, not detected
Xylene, total	1.60 - 8.30	0 / 8			50.0	/	0.17	1.78	0.036						No	HQ less than one, not detected
Semivolatile Organic Compounds (UG/KG)	•		•	•		•		•				•	•			
1,1-Biphenyl	180 - 210	0 / 10			60,000	/	0.0035	96.5	0.002						No	HQ less than one, not detected
2,2'-Oxybis(1-chloropropane)	180 - 210	0 / 10			NSV	/	NSV	96.5	NSV						No	No screening value, not detected
2,4,5-Trichlorophenol	180 - 210	0 / 10			4,000	/	0.053	96.5	0.024						No	HQ less than one, not detected
2,4-Dichlorophenol	180 - 210	0 / 10			3.00	/	70.0	96.5	32						No	Not detected
2,4-Dimethylphenol	180 - 210	0 / 10			NSV	/	NSV	96.5	NSV						No	No screening value, not detected
2,4-Dinitrophenol	180 - 210	0 / 10			20,000	/	0.011	96.5	0.005						No	HQ less than one, not detected
2,4-Dinitrotoluene 2,6-Dinitrotoluene	180 - 210 180 - 210	0 / 10			NSV NSV	/	NSV NSV	96.5 96.5	NSV NSV						No No	No screening value, not detected No screening value, not detected
2,6-Dinitrotoluene 2-Chloronaphthalene	180 - 210	0 / 10			1,000	/	0.21	96.5	0.097						No No	HQ less than one, not detected
2-Chlorophenol	180 - 210	0 / 10			10.0	/	21.0	96.5	9.65						No	Not detected
2-Methylnaphthalene	180 - 210	0 / 10			29,000	/	0.0072	96.5	0.003						No	HQ less than one, not detected
2-Methylphenol	180 - 210	0 / 10			500	/	0.42	96.5	0.003						No	HQ less than one, not detected
2-Nitroaniline	180 - 210	0 / 10			NSV	/	NSV	96.5	NSV						No	No screening value, not detected
			1	1							1	1	1	1		<u> </u>

Table F-5
ERS Subsurface Soil Screen for Site 15
Camp Johnson Consutrcion Area
Focused PA/SI
MCB Camp Leieune. North Carolina

MCB Camp Lejeune, North Carolina						1			,					T		
			Maximum				Maximum				Maximum		Supplemental	Supplemental		
a	Range of Non-	Frequency of	Concentration	Sample ID of Maximum	Screening	Frequency of	Hazard	Arithmetic Mean	Mean Hazard	2 x Mean	Exceeds 2 x Mean	Supplemental	Screening Value	Screening Value		
Chemical	Detect Values	Detection	Detected	Detected Concentration	Value	Exceedance ¹	Quotient	Concentration	Quotient	Background	Background?	Screening Value	Source	Maximum HQ	Retain?	Rationale
2-Nitrophenol	180 - 210	0 / 10	***		NSV	/	NSV	96.5	NSV						No	No screening value, not detected
3,3'-Dichlorobenzidine	180 - 210	0 / 10			NSV	/	NSV	96.5	NSV						No	No screening value, not detected
3-Nitroaniline	180 - 210	0 / 10			NSV	/	NSV	96.5	NSV						No	No screening value, not detected
4,6-Dinitro-2-methylphenol	180 - 210	0 / 10			NSV	/	NSV	96.5	NSV						No	No screening value, not detected
4-Bromophenyl-phenylether	180 - 210	0 / 10			NSV	/	NSV	96.5	NSV						No	No screening value, not detected
4-Chloro-3-methylphenol	180 - 210	0 / 10			NSV	/	NSV	96.5	NSV						No	No screening value, not detected
4-Chloroaniline	180 - 210	0 / 10			20,000	/	0.011	96.5	0.005						No	HQ less than one, not detected
4-Chlorophenyl-phenylether	180 - 210	0 / 10			NSV	/	NSV	96.5	NSV						No	No screening value, not detected
4-Methylphenol	180 - 210	0 / 10			500	/	0.42	96.5	0.19						No No	HQ less than one, not detected
4-Nitroaniline	180 - 210 180 - 210	0 / 10			NSV 7,000	/	NSV 0.030	96.5 96.5	NSV 0.014						No No	No screening value, not detected HQ less than one, not detected
4-Nitrophenol Acenaphthene	180 - 210	0 / 10			29,000	/	0.030	96.5	0.014						No	HQ less than one, not detected
Acenaphthylene	180 - 210	0 / 10			29,000	/	0.0072	96.5	0.003						No	HQ less than one, not detected
Acetophenone	180 - 210	0 / 10			NSV	/	NSV	96.5	NSV						No	No screening value, not detected
Anthracene	180 - 210	0 / 10			29,000	/	0.0072	96.5	0.003						No	HQ less than one, not detected
Atrazine	180 - 210	0 / 10			0.050	/	4,200	96.5	1930						No	Not detected
Benzaldehyde	190 - 190	0 / 1			NSV	/	NSV	95.0	NSV						No	No screening value, not detected
Benzo(a)anthracene	36.0 - 42.0	0 / 10			1,100	/	0.038	19.2	0.017						No	HQ less than one, not detected
Benzo(a)pyrene	36.0 - 42.0	0 / 10			1,100	/	0.038	19.2	0.017						No	HQ less than one, not detected
Benzo(b)fluoranthene	36.0 - 42.0	0 / 10			1,100	/	0.038	19.2	0.017						No	HQ less than one, not detected
Benzo(g,h,i)perylene	180 - 210	0 / 10			1,100	/	0.19	96.5	0.088						No	HQ less than one, not detected
Benzo(k)fluoranthene	180 - 210	0 / 10			1,100	/	0.19	96.5	0.088						No	HQ less than one, not detected
bis(2-Chloroethoxy)methane	180 - 210	0 / 10			NSV	/	NSV	96.5	NSV						No	No screening value, not detected
bis(2-Chloroethyl)ether	180 - 210	0 / 10			NSV	/	NSV	96.5	NSV						No	No screening value, not detected
bis(2-Ethylhexyl)phthalate	180 - 360	3 / 10	37.0	IR15-SB01-4-6-09C	100	0 / 10	0.37	100	1						No	HQ less than one, detected
Butylbenzylphthalate	180 - 210	0 / 10			100	/	2.10	96.5	0.97						No	Not detected
Caprolactam	180 - 210	0 / 10			NSV	/	NSV	96.5	NSV						No	No screening value, not detected
Carbazole	180 - 210	0 / 10			NSV	/	NSV	96.5	NSV						No	No screening value, not detected
Chrysene	180 - 210	0 / 10			1,100	/	0.19	96.5	0.088						No	HQ less than one, not detected
Dibenz(a,h)anthracene	36.0 - 42.0	0 / 10			1,100	/	0.038	19.2	0.017						No	HQ less than one, not detected
Dibenzofuran	180 - 210	0 / 10			NSV	/	NSV	96.5	NSV						No	No screening value, not detected
Diethylphthalate	180 - 210	0 / 10			100,000	/	0.0021	96.5	0.001						No	HQ less than one, not detected
Dimethyl phthalate	180 - 210	0 / 10			200,000	/	0.0011	96.5	4.825E-04						No	HQ less than one, not detected
Di-n-butylphthalate	180 - 210	0 / 10			200,000	/	0.0011	96.5	4.825E-04						No	HQ less than one, not detected
Di-n-octylphthalate	180 - 210	0 / 10			100	/	2.10	96.5	0.97						No	Not detected
Fluoranthene	180 - 210	0 / 10			1,100	/	0.19	96.5	0.088						No	HQ less than one, not detected
Fluorene	180 - 210	0 / 10			29,000	/	0.0072	96.5	0.003						No	HQ less than one, not detected
Hexachlorobenzene	180 - 210	0 / 10			2.50	/	84.0	96.5	39						No	Not detected
Hexachlorobutadiene	180 - 210	0 / 10			NSV	/	NSV	96.5	NSV						No	No screening value, not detected
Hexachlorocyclopentadiene	180 - 210	0 / 10			10,000	/	0.021	96.5	0.010						No	HQ less than one, not detected Not detected
Hexachloroethane	180 - 210	0 / 10			100	/	2.10	96.5	0.97						No	
Indeno(1,2,3-cd)pyrene	36.0 - 42.0	0 / 10			1,100	/	0.038	19.2 19.2	0.017						No No	HQ less than one, not detected No screening value, not detected
Isophorone Naphthalene	36.0 - 42.0 180 - 210	0 / 10			NSV 29,000	/	NSV 0.0072	96.5	NSV 0.003						No No	HQ less than one, not detected
n-Nitroso-di-n-propylamine	36.0 - 42.0	0 / 10			29,000 NSV	/	0.0072 NSV	19.2	0.003 NSV						No No	No screening value, not detected
n-Nitrosodiphenylamine	180 - 210	0 / 10			20,000	/	0.011	96.5	0.005						No	HQ less than one, not detected
Nitrobenzene	180 - 210	0 / 10			40,000	/	0.0053	96.5	0.003						No	HQ less than one, not detected
Pentachlorophenol	180 - 210	0 / 10	-		2,100	/	0.10	96.5	0.002						No	HQ less than one, not detected
Phenanthrene	180 - 210	0 / 10			29,000	/	0.0072	96.5	0.003						No	HQ less than one, not detected
Phenol	180 - 210	0 / 10			50.0	/	4.20	96.5	1.93						No	Not detected
Pyrene	180 - 210	0 / 10			1,100	/	0.19	96.5	0.088						No	HQ less than one, not detected
Pesticide/Polychlorinated Biphenyls (UG/KG)				•		•		•						•	•	•
																Low frequency and magnitude of exceedance. Mean
4,4'-DDD	1.80 - 2.10	5 / 10	46.0	IR15-SB10-2-4-09C	21.0	1 / 10	2.19	6.56	0.31						No	HQ less than one.
4,4'-DDE	1.80 - 1.90	7 / 10	95.0	IR15-SB10-2-4-09C	21.0	1 / 10	4.52	11.8	0.56						Yes	HQ above 1 and undefined
4,4'-DDT	1.80 - 2.10	5 / 10	180	IR15-SB10-2-4-09C	21.0	2 / 10	8.57	21.6	1.03						Yes	HQ above 1 and undefined
Aldrin	1.80 - 2.10	0 / 10			2.50	/	0.84	0.97	0.39						No	HQ less than one, not detected
alpha-BHC	1.80 - 2.10	0 / 10			2.50	/	0.84	0.97	0.39						No	HQ less than one, not detected
	1.80 - 2.10	2 / 10	9.90	IR15-SB10-2-4-09C	100	0 / 10	0.099	2.14	0.02						No	HQ less than one, detected
alpha-Chlordane		0 / 10			20.0	/	1.05	9.65	0.48						No	Not detected
alpha-Chlordane Aroclor-1016	18.0 - 21.0							1	0.40							land and a second
	18.0 - 21.0 18.0 - 21.0	0 / 10			20.0	/	1.05	9.65	0.48						No	Not detected
Aroclor-1016					20.0	/	1.05 1.05	9.65 9.65	0.48						No No	Not detected
Aroclor-1016 Aroclor-1221	18.0 - 21.0 18.0 - 21.0 18.0 - 21.0	0 / 10														
Aroclor-1221 Aroclor-1232	18.0 - 21.0 18.0 - 21.0	0 / 10 0 / 10			20.0	/	1.05	9.65	0.48						No	Not detected

Table F-5
ERS Subsurface Soil Screen for Site 15
Camp Johnson Consutrcion Area
Focused PA/SI

MCB Camp Lejeune, North Carolina

MCB Camp Lejeune, North Carolina						1		1		1			1			
Chemical	Range of Non- Detect Values	Frequency of Detection	Maximum Concentration Detected	Sample ID of Maximum Detected Concentration	Screening Value	Frequency of Exceedance ¹	Maximum Hazard Quotient	Arithmetic Mean Concentration	Mean Hazard Quotient	2 x Mean Background	Maximum Exceeds 2 x Mean Background?	Supplemental Screening Value	Supplemental Screening Value Source	Supplemental Screening Value Maximum HQ	Retain?	Rationale
Aroclor-1260	18.0 - 21.0	0 / 10			20.0	/	1.05	9.65	0.48						No	Not detected
beta-BHC	1.80 - 2.10	0 / 10			1.00	/	2.10	0.97	0.97						No	Not detected
delta-BHC	1.80 - 2.10	0 / 10			100	/	0.021	0.97	0.01						No	HQ less than one, not detected
Dieldrin	1.80 - 2.10	1 / 10	2.30	IR15-SB05-2-7-09C	4.90	0 / 10	0.47	1.10	0.22						No	HQ less than one, detected
Endosulfan I	1.80 - 2.10	0 / 10			100	/	0.021	0.97	0.01						No	HQ less than one, not detected
Endosulfan II	1.80 - 2.10	0 / 10			100	/	0.021	0.97	0.01						No	HQ less than one, not detected
Endosulfan sulfate	1.80 - 2.10	0 / 10			100	/	0.021	0.97	0.01						No	HQ less than one, not detected
Endrin	1.80 - 2.10	0 / 10			1.00	/	2.10	0.97	0.97						No	Not detected
Endrin aldehyde	1.80 - 2.10	0 / 10			100	/	0.021	0.97	0.01						No	HQ less than one, not detected
Endrin ketone	1.80 - 2.10	0 / 10			100	/	0.021	0.97	0.01						No	HQ less than one, not detected
gamma-BHC (Lindane)	1.80 - 2.10	0 / 10			0.050	/	42.0	0.97	19						No	Not detected
gamma-Chlordane	1.80 - 2.10	2 / 10	7.40	IR15-SB10-2-4-09C	100	0 / 10	0.074	1.84	0.02						No	HQ less than one, detected
Heptachlor	1.80 - 2.10	0 / 10			100	/	0.021	0.97	0.01						No	HQ less than one, not detected
Heptachlor epoxide	1.80 - 2.10	0 / 10			100	/	0.021	0.97	0.01						No	HQ less than one, not detected
Methoxychlor	1.80 - 2.10	0 / 10			100	/	0.021	0.97	0.01						No	HQ less than one, not detected
Toxaphene	36.0 - 42.0	0 / 10			100	/	0.42	19.2	0.19						No	HQ less than one, not detected
Inorganics (MG/KG)	•			•					•	•			•		•	
Aluminum		10 / 10	6,070	IR15-SB02-2-7-09C	50.0	10 / 10	121	3,523	70	10,369	No				No	Consistent with background
Antimony	1.50 - 8.60	2 / 10	0.82	IR15-SB01-4-6-09C	0.27	1 / 10	3.04	1.10	4.09	0.36	Yes				Yes	HQ above 1 and well above background range
Arsenic	1.60 - 1.60	9 / 10	16.6	IR15-SB09-2-7-09C	18.0	0 / 10	0.92	2.81	0.16	2.12	Yes				No	HQ less than one, detected
Barium	4.10 - 21.5	8 / 10	32.3	IR15-SB01-4-6-09C	330	0 / 10	0.098	10.7	0.032	16.6	Yes				No	HQ less than one, detected
Beryllium	0.15 - 0.18	4 / 10	0.071	IR15-SB09-2-7-09C	21.0	0 / 10	0.0034	0.070	0.003	0.165	No	1			No	Consistent with background
																Low magnitude of exceedance, mean HQ less than
Cadmium	0.46 - 0.54	3 / 10	0.82	IR15-SB09-2-7-09C	0.36	2 / 10	2.28	0.31	0.86	0.023	Yes				No	one
Calcium ²	76.9 - 82.1	8 / 10	20,000	IR15-SB01-4-6-09C	NSV	/	NSV	2,490	NSV	441	Yes				No	Macronutrient
																Low frequency and magnitude of exceedance, mean
Chromium		10 / 10	52.4	IR15-SB09-2-7-09C	26.0	1 / 10	2.02	10.0	0.38	14.5	Yes				No	HQ less than one
Cobalt	0.41 - 0.41	9 / 10	9.30	IR15-SB09-2-7-09C	13.0	0 / 10	0.72	1.16	0.089	0.822	Yes	-			No	Mean HQ less than one
																Low frequency and magnitude of exceedance, mean
Copper	1.60 - 1.60	9 / 10	31.7	IR15-SB04-2-7-09C	28.0	1 / 10	1.13	8.31	0.30	2.56	Yes				No	HQ less than one
Iron		10 / 10	179,000	IR15-SB09-2-7-09C	200	9 / 10	895	20,233	101	5,439	Yes				Yes	HQ above 1 and well above background range
													Region 4 (EPA,			
Lead		10 / 10	483	IR15-SB01-4-6-09C	11.0	4 / 10	43.9	69.8	6.35	8.49	Yes	50	2001)	9.66	Yes	HQ above 1 and well above background range
Magnesium ²		10 / 10	219	IR15-SB01-4-6-09C	NSV	/	NSV	138	NSV	363	No				No	Macronutrient
																Low frequency and magnitude of exceedance, mean
Manganese		10 / 10	626	IR15-SB09-2-7-09C	220	1 / 10	2.85	76.1	0.35	9.25	Yes				No	HQ less than one
Mercury	0.033 - 0.037	6 / 10	0.14	IR15-SB01-4-6-09C	0.10	1 / 10	1.40	0.036	0.36	0.071	Yes				No	Within background range
Nickel	0.79 - 0.82	8 / 10	24.4	IR15-SB09-2-7-09C	38.0	0 / 10	0.64	3.57	0.094	2.27	Yes				No	HQ less than one, detected
Potassium ²		10 / 10	236	IR15-SB09-2-7-09C	NSV	/	NSV	126	NSV	361	No				No	Macronutrient
Selenium	1.50 - 8.60	0 / 10			0.52	/	16.5	1.16	2.23	0.505					No	Not detected
Silver	1.50 - 8.60	0 / 10			4.20	/	2.05	1.16	0.28	0.129					No	Not detected
Sodium ²	194 - 1,080	6 / 10	15.0	IR15-SB04-2-7-09C	NSV	/	NSV	89.0	NSV	68.3	No				No	Macronutrient
Thallium	2.30 - 2.70	1 / 10	1.90	IR15-SB09-2-7-09C	1.00	1 / 10	1.90	1.30	1.30	0.38	Yes				No	Low frequency and magnitude of exceedance
Vanadium	4.10 - 21.5	8 / 10	10.4	IR15-SB02-2-7-09C	7.80	3 / 10	1.33	6.67	0.86	17.2	No				No	Consistent with background
Zinc	3.90 - 8.00	6 / 10	345	IR15-SB01-4-6-09C	46.0	2 / 10	7.50	51.3	1.12	6.59	Yes				Yes	HQ above 1 and well above background range

NOTES

1 - Count of detected samples exceeding or equaling Screening Value

2 - Macronutrient - Not considered to be a contaminant of potential concern (COPC)

HQ - Hazard Quotient

NSV - No Screening Value

MG/KG - Milligrams per kilogram

UG/KG - Micrograms per kilogram

Generated by: Sara Kent

Checked by: Kelly Taylor

Table F-6
ERS Groundwater Screen for Site 15
Camp Johnson Consutrcion Area
Focused PA/SI

	Range of Non- Detect Values	Frequency of Detection	Maximum Concentration Detected	Sample ID of Maximum Detected Concentration	Screening Value ¹	Frequency of Exceedance ²	Maximum Hazard Quotient	Arithmetic Mean Concentration	Mean Hazard Quotient	2 x Mean Background	Exceeds 2 x Mean Background?	Supplemental Screening Value	Supplemental Screening Value Source	Supplemental Screening Value Maximum HQ	Retain?	Rationale
	Detect values	Detection	Detected	Concentration	value	Exceedance	Quotient	Concentration	Quotient	Васкугоціц	Background:	Screening value	Source	Waxiiiiuiii HQ	Retains	Rationale
Volatile Organic Compounds (UG/L)	100 100	0.4.4		Τ	040	,	2 2222	1 0.50	1 2 222	Τ	1	1				Tuo
1,1,1-Trichloroethane	1.00 - 1.00	0 / 4			312	/	0.0032	0.50	0.002						No	HQ less than one, not detected
1,1,2,2-Tetrachloroethane	1.00 - 2.40	0 / 4			90.2	/	0.027	0.68	0.007						No	HQ less than one, not detected
1,1,2-Trichloro-1,2,2-trifluoroethane(Freon-113)	1.00 - 1.00	0 / 4			NSV	/	NSV	0.50	NSV						No	No screening value, not detected
1,1,2-Trichloroethane	1.00 - 1.00	0 / 4			NSV	/	NSV	0.50	NSV						No	No screening value, not detected
1,1-Dichloroethane	1.00 - 1.00	0 / 4			NSV	/	NSV	0.50	NSV						No	No screening value, not detected
1,1-Dichloroethene	1.00 - 1.00	0 / 4			2,240	/	4.46E-04	0.50	2.232E-04						No	HQ less than one, not detected
1,2,4-Trichlorobenzene	1.00 - 1.00	0 / 4			4.50	/	0.22	0.50	0.11						No	HQ less than one, not detected
1,2-Dibromoethane	1.00 - 1.00	0 / 4			NSV	/	NSV	0.50	NSV						No	No screening value, not detected
1,2-Dichlorobenzene	1.00 - 1.00	0 / 4			19.7	/	0.051	0.50	0.025						No	HQ less than one, not detected
1,2-Dichloroethane	1.00 - 1.00	0 / 4			1,130	/	8.85E-04	0.50	4.425E-04						No	HQ less than one, not detected
1,2-Dichloropropane	1.00 - 1.00	0 / 4			2,400	/	4.17E-04	0.50	2.083E-04						No	HQ less than one, not detected
1,3-Dichlorobenzene	1.00 - 1.00	0 / 4			28.5	/	0.035	0.50	0.018						No	HQ less than one, not detected
1,4-Dichlorobenzene	1.00 - 1.00	0 / 4			19.9	/	0.050	0.50	0.025						No	HQ less than one, not detected
2-Butanone	5.00 - 5.00	0 / 4			NSV	/	NSV	2.50	NSV						No	No screening value, not detected
2-Hexanone	5.00 - 5.00	0 / 4			NSV	/	NSV	2.50	NSV						No	No screening value, not detected
4-Methyl-2-pentanone	5.00 - 5.00	0 / 4			NSV	/	NSV	2.50	NSV						No	No screening value, not detected
Acetone	5.00 - 5.00	0 / 4			NSV	/	NSV	2.50	NSV						No	No screening value, not detected
Benzene	1.00 - 1.00	0 / 4			109	/	0.0092	0.50	0.005						No	HQ less than one, not detected
Bromodichloromethane	1.00 - 1.00	0 / 4			NSV	/	NSV	0.50	NSV						No	No screening value, not detected
Bromoform	1.00 - 1.00	0 / 4			640	/	0.0016	0.50	0.001						No	HQ less than one, not detected
Bromomethane	1.10 - 1.10	0 / 4			120	/	0.0092	0.55	0.005						No	HQ less than one, not detected
Carbon disulfide	1.00 - 1.00	0 / 4			NSV	/	NSV	0.50	NSV						No	No screening value, not detected
Carbon tetrachloride	1.00 - 1.00	0 / 4			1,500	/	6.67E-04	0.50	3.333E-04						No	HQ less than one, not detected
Chlorobenzene	1.00 - 1.00	0 / 4			105	/	0.0095	0.50	0.005						No	HQ less than one, not detected
Chloroethane	1.00 - 1.00	0 / 4			NSV	/	NSV	0.50	NSV						No	No screening value, not detected
Chloroform	1.00 - 1.00	0 / 4			815	/	0.0012	0.50	0.001						No	HQ less than one, not detected
Chloromethane	1.00 - 1.00	0 / 4			2,700	/	3.70E-04	0.50	1.852E-04						No	HQ less than one, not detected
cis-1,2-Dichloroethene	1.00 - 1.00	0 / 4			NSV	/	NSV	0.50	NSV						No	No screening value, not detected
cis-1,3-Dichloropropene	1.00 - 1.00	0 / 4			7.90	/	0.13	0.50	0.063						No	HQ less than one, not detected
Cyclohexane	1.00 - 1.00	0 / 4			NSV	/	NSV	0.50	NSV						No	No screening value, not detected
Dibromochloromethane	1.00 - 1.00	0 / 4			NSV	/	NSV	0.50	NSV						No	No screening value, not detected
Dichlorodifluoromethane (Freon-12)	1.00 - 1.00	0 / 4			NSV	/	NSV	0.50	NSV						No	No screening value, not detected
Ethylbenzene	1.00 - 1.00	0 / 4			4.30	/	0.23	0.50	0.12						No	HQ less than one, not detected
Isopropylbenzene	1.00 - 1.00	1 / 4	4.90	IR15-TW03D-09C	NSV	/	NSV	1.60	NSV			255	TCEQ, 2006	0.0192	No	Supplemental HQ less than one
Methyl acetate	1.00 - 1.00	0 / 4			NSV	/	NSV	0.50	NSV						No	No screening value, not detected
Methylcyclohexane	1.00 - 1.00	0 / 4			NSV	/	NSV	0.50	NSV						No	No screening value, not detected
Methylene chloride	1.00 - 1.00	0 / 4			2,560	/	3.91E-04	0.50	1.953E-04						No	HQ less than one, not detected
Methyl-tert-butyl ether (MTBE)	1.00 - 1.00	0 / 4			NSV	/	NSV	0.50	NSV						No	No screening value, not detected
Styrene (III 22)	1.00 - 1.00	1 / 4	5.90	IR15-TW03D-09C	NSV	/	NSV	1.85	NSV			455	TCEQ, 2006	0.0130	No	Supplemental HQ less than one
Tetrachloroethene	1.10 - 1.10	0 / 4			45.0	/	0.024	0.55	0.012						No	HQ less than one, not detected
Toluene	1.00 - 1.00	0 / 4			37.0	/	0.027	0.50	0.014						No	HQ less than one, not detected
trans-1,2-Dichloroethene	1.00 - 1.00	0 / 4			NSV	/	NSV	0.50	NSV						No	No screening value, not detected
trans-1,3-Dichloropropene	1.00 - 1.00	0 / 4			7.90	/	0.13	0.50	0.063						No	HQ less than one, not detected
Trichloroethene	5.10 - 5.10	0 / 4			NSV	/	NSV	2.55	NSV						No	No screening value, not detected
Trichlorofluoromethane(Freon-11)	1.00 - 1.00	0 / 4			NSV	/	NSV	0.50	NSV						No	No screening value, not detected
Vinyl chloride	1.00 - 1.00	0 / 4			NSV	/	NSV	0.50	NSV						No	No screening value, not detected
Xylene, total	1.20 - 1.20	0 / 4			NSV	/	NSV	0.60	NSV						No	No screening value, not detected
Semivolatile Organic Compounds (UG/L)	1.20 - 1.20	0 / 4			INOV	/	IVOV	0.00	IVOV						NU	INO Screening value, not detected
1,1-Biphenyl	10.0 - 11.0	0 / 3		<u> </u>	NSV	1	NSV	5.33	NSV		1	1			No	No screening value, not detected
	10.0 - 11.0				NSV	/	NSV	5.33	NSV							0 1
2,2'-Oxybis(1-chloropropane) 2,4,5-Trichlorophenol		0 / 3				/									No	No screening value, not detected
/ /L D- LCCDIOCODDODO	10.0 - 11.0	0 / 3			NSV	/	NSV	5.33	NSV						No	No screening value, not detected
2,4-Dichlorophenol	10.0 - 11.0	0 / 3			NSV	/	NSV	5.33	NSV						No	No screening value, not detected

Table F-6
ERS Groundwater Screen for Site 15
Camp Johnson Consutrcion Area
Focused PA/SI

Chemical	Range of Non- Detect Values	Frequency of Detection	Maximum Concentration Detected	Sample ID of Maximum Detected Concentration	Screening Value ¹	Frequency of Exceedance ²	Maximum Hazard Quotient	Arithmetic Mean Concentration	Mean Hazard Quotient	2 x Mean Background	Exceeds 2 x Mean Background?	Supplemental Screening Value	Supplemental Screening Value Source	Supplemental Screening Value Maximum HQ	Retain?	Rationale
2,4-Dinitrophenol	20.0 - 22.0	0 / 3			48.5	/	0.45	10.5	0.22						No	HQ less than one, not detected
2,4-Dinitrotoluene	10.0 - 11.0	0 / 3			NSV	/	NSV	5.33	NSV						No	No screening value, not detected
2,6-Dinitrotoluene	10.0 - 11.0	0 / 3			NSV	/	NSV	5.33	NSV						No	No screening value, not detected
2-Chloronaphthalene	10.0 - 11.0	0 / 3			NSV	/	NSV	5.33	NSV						No	No screening value, not detected
2-Chlorophenol	10.0 - 11.0	0 / 3			NSV	/	NSV	5.33	NSV						No	No screening value, not detected
2-Methylnaphthalene	10.0 - 11.0	0 / 3			NSV	/	NSV	5.33	NSV						No	No screening value, not detected
2-Methylphenol	10.0 - 11.0	0 / 3			NSV	/	NSV	5.33	NSV						No	No screening value, not detected
2-Nitroaniline	10.0 - 11.0	0 / 3			NSV	/	NSV	5.33	NSV						No	No screening value, not detected
2-Nitrophenol	10.0 - 11.0	0 / 3			NSV	/	NSV	5.33	NSV						No	No screening value, not detected
3,3'-Dichlorobenzidine	20.0 - 22.0	0 / 3			NSV	/	NSV	10.5	NSV						No	No screening value, not detected
3-Nitroaniline	10.0 - 11.0	0 / 3			NSV	/	NSV	5.33	NSV						No	No screening value, not detected
4,6-Dinitro-2-methylphenol	20.0 - 22.0	0 / 3			NSV	/	NSV	10.5	NSV						No	No screening value, not detected
4-Bromophenyl-phenylether	10.0 - 11.0	0 / 3			NSV	/	NSV	5.33	NSV						No	No screening value, not detected
4-Chloro-3-methylphenol	10.0 - 11.0	0 / 3			NSV	/	NSV	5.33	NSV						No	No screening value, not detected
4-Chloroaniline	10.0 - 11.0	0 / 3			NSV	/	NSV	5.33	NSV						No	No screening value, not detected
4-Chlorophenyl-phenylether	10.0 - 11.0	0 / 3			NSV	/	NSV	5.33	NSV						No	No screening value, not detected
4-Methylphenol	20.0 - 22.0	0 / 3			NSV	/	NSV	10.5	NSV						No	No screening value, not detected
4-Nitroaniline	10.0 - 11.0	0 / 3			NSV	/	NSV	5.33	NSV						No	No screening value, not detected
4-Nitrophenol	20.0 - 22.0	0 / 3			71.7	/	0.31	10.5	0.15						No	HQ less than one, not detected
Acenaphthene	10.0 - 11.0	0 / 3			9.70	/	1.13	5.33	0.55						No	No screening value, not detected
Acenaphthylene	10.0 - 11.0	0 / 3			NSV	/	NSV	5.33	NSV						No	No screening value, not detected
Acetophenone	10.0 - 11.0	0 / 3			NSV	/	NSV	5.33	NSV						No	No screening value, not detected
Anthracene	10.0 - 11.0	0 / 3			NSV	/	NSV	5.33	NSV						No	No screening value, not detected
Atrazine	20.0 - 22.0	0 / 3			NSV	/	NSV	10.5	NSV						No	No screening value, not detected
Benzo(a)anthracene	10.0 - 11.0	0 / 3			NSV	/	NSV	5.33	NSV						No	No screening value, not detected
Benzo(a)pyrene	10.0 - 11.0	0 / 3			NSV	/	NSV	5.33	NSV						No	No screening value, not detected
Benzo(b)fluoranthene	10.0 - 11.0	0 / 3			NSV	/	NSV	5.33	NSV						No	No screening value, not detected
Benzo(g,h,i)perylene	10.0 - 11.0	0 / 3			NSV	/	NSV	5.33	NSV						No	No screening value, not detected
Benzo(k)fluoranthene	10.0 - 11.0	0 / 3			NSV	/	NSV	5.33	NSV						No	No screening value, not detected
bis(2-Chloroethoxy)methane	10.0 - 11.0	0 / 3			NSV	/	NSV	5.33	NSV						No	No screening value, not detected
bis(2-Chloroethyl)ether	10.0 - 11.0	0 / 3			NSV	/	NSV	5.33	NSV						No	No screening value, not detected
bis(2-Ethylhexyl)phthalate	10.0 - 11.0	0 / 3			NSV	/	NSV	5.33	NSV						No	No screening value, not detected
Butylbenzylphthalate	10.0 - 11.0	0 / 3			29.4	/	0.37	5.33	0.18						No	HQ less than one, not detected
Caprolactam	10.0 - 11.0	0 / 3			NSV	/	NSV	5.33	NSV						No	No screening value, not detected
Carbazole	10.0 - 11.0	0 / 3			NSV	/	NSV	5.33	NSV						No	No screening value, not detected
Chrysene Dibenz(a,h)anthracene	10.0 - 11.0 10.0 - 11.0	0 / 3			NSV NSV	/	NSV NSV	5.33 5.33	NSV NSV						No	No screening value, not detected
Dibenzofuran	10.0 - 11.0	0 / 3			NSV	/	NSV	5.33	NSV						No	No screening value, not detected No screening value, not detected
															No	
Diethylphthalate	10.0 - 11.0 10.0 - 11.0	0 / 3			759 580	/	0.014 0.019	5.33 5.33	0.007						No	HQ less than one, not detected
Dimethyl phthalate Di-n-butylphthalate		0 / 3				/									No	HQ less than one, not detected
71	20.0 - 22.0 10.0 - 11.0	0 / 3			3.40 NSV	/	6.47 NSV	10.5	3.09						No	Not detected
Di-n-octylphthalate		0 / 3				/		5.33	NSV						No	No screening value, not detected
Fluoranthene	10.0 - 11.0	0 / 3			1.60	/	6.88	5.33	3.33						No	Not detected
Fluorene	10.0 - 11.0	0 / 3			NSV	/	NSV	5.33	NSV						No	No screening value, not detected
Hexachlorobenzene	10.0 - 11.0	0 / 3			NSV	/	NSV	5.33	NSV						No	No screening value, not detected
Hexachlorobutadiene	10.0 - 11.0	0 / 3			0.32	/	34.4	5.33	17						No	Not detected
Hexachlorocyclopentadiene	10.0 - 11.0	0 / 3			0.070	/	157	5.33	76						No	Not detected
Hexachloroethane	10.0 - 11.0	0 / 3			9.40	/	1.17	5.33	0.57						No	Not detected
Indeno(1,2,3-cd)pyrene	10.0 - 11.0	0 / 3			NSV	/	NSV	5.33	NSV						No	No screening value, not detected
Isophorone	10.0 - 11.0	0 / 3			129	/	0.085	5.33	0.041						No	HQ less than one, not detected
Naphthalene	10.0 - 11.0	0 / 3			23.5	/	0.47	5.33	0.23						No	HQ less than one, not detected
n-Nitroso-di-n-propylamine	10.0 - 11.0	0 / 3			NSV	/	NSV	5.33	NSV						No	No screening value, not detected
n-Nitrosodiphenylamine	10.0 - 11.0	0 / 3			33,000	/	3.33E-04	5.33	1.616E-04						No	HQ less than one, not detected

Table F-6
ERS Groundwater Screen for Site 15
Camp Johnson Consutrcion Area
Focused PA/SI

	Range of Non-	Frequency of	Maximum Concentration	Sample ID of Maximum Detected	Screening	Frequency of	Maximum Hazard	Arithmetic Mean	Mean Hazard	2 x Mean	Exceeds 2 x Mean	Supplemental	Supplemental Screening Value	Supplemental Screening Value		
Chemical	Detect Values	Detection	Detected	Concentration	Value ¹	Exceedance ²	Quotient	Concentration	Quotient	Background	Background?	Screening Value	Source	Maximum HQ	Retain?	Rationale
Pentachlorophenol	20.0 - 22.0	0 / 3			7.90	/	2.78	10.5	1.33						No	Not detected
Phenanthrene	10.0 - 11.0	0 / 3			NSV	/	NSV	5.33	NSV						No	No screening value, not detected
Phenol	10.0 - 11.0	0 / 3			58.0	/	0.19	5.33	0.092						No	HQ less than one, not detected
Pyrene	10.0 - 11.0	0 / 3			NSV	/	NSV	5.33	NSV						No	No screening value, not detected
Pesticide/Polychlorinated Biphenyls	(UG/L)										•					
4,4'-DDD	0.051 - 0.053	0 / 3			0.025	/	2.12	0.026	1.04						No	Not detected
4,4'-DDE	0.051 - 0.053	0 / 3			0.14	/	0.38	0.026	0.19						No	HQ less than one, not detected
4,4'-DDT	0.051 - 0.053	0 / 3			0.0010	/	53.0	0.026	26						No	Not detected
Aldrin	0.051 - 0.053	0 / 3			0.13	/	0.41	0.026	0.2						No	HQ less than one, not detected
alpha-BHC	0.051 - 0.053	0 / 3			1,400	/	3.79E-05	0.026	1.857E-05						No	HQ less than one, not detected
alpha-Chlordane	0.051 - 0.053	0 / 3			0.0040	/	13.3	0.026	6.5						No	Not detected
Aroclor-1016	0.51 - 0.53	0 / 3			0.030	/	17.7	0.26	8.67						No	Not detected
Aroclor-1221	0.51 - 0.53	0 / 3			0.030	/	17.7	0.26	8.67						No	Not detected
Aroclor-1232	0.51 - 0.53	0 / 3			0.030	/	17.7	0.26	8.67						No	Not detected
Aroclor-1242	0.51 - 0.53	0 / 3			0.030	/	17.7	0.26	8.67						No	Not detected
Aroclor-1248	0.51 - 0.53	0 / 3			0.030	/	17.7	0.26	8.67						No	Not detected
Aroclor-1254	0.51 - 0.53	0 / 3			0.030	/	17.7	0.26	8.67						No	Not detected
Aroclor-1260	0.51 - 0.53	0 / 3			0.030	/	17.7	0.26	8.67						No	Not detected
beta-BHC	0.051 - 0.053	0 / 3			NSV	/	NSV	0.026	NSV						No	No screening value, not detected
delta-BHC	0.051 - 0.053	0 / 3			NSV	/	NSV	0.026	NSV						No	No screening value, not detected
Dieldrin	0.051 - 0.053	0 / 3			0.0019	/	27.9	0.026	14						No	Not detected
Endosulfan I	0.051 - 0.053	0 / 3			0.0087	/	6.09	0.026	2.99						No	Not detected
Endosulfan II	0.051 - 0.053	0 / 3			0.0087	/	6.09	0.026	2.99						No	Not detected
Endosulfan sulfate	0.051 - 0.053	0 / 3			NSV	/	NSV	0.026	NSV						No	Not detected
Endrin	0.051 - 0.053	0 / 3			0.0023	/	23.0	0.026	11						No	Not detected
Endrin aldehyde	0.051 - 0.053	0 / 3			NSV	/	NSV	0.026	NSV						No	No screening value, not detected
Endrin ketone	0.051 - 0.053	0 / 3			NSV	/	NSV	0.026	NSV						No	No screening value, not detected
gamma-BHC (Lindane)	0.051 - 0.053	0 / 3			0.016	/	3.31	0.026	1.63						No	Not detected
gamma-Chlordane	0.051 - 0.053	0 / 3			0.0040	/	13.3	0.026	6.50						No	Not detected
Heptachlor	0.051 - 0.053	0 / 3			0.0036	/	14.7	0.026	7.22						No	Not detected
Heptachlor epoxide	0.051 - 0.053	0 / 3			0.0036	/	14.7	0.026	7.22						No	Not detected
Methoxychlor	0.051 - 0.053	0 / 3			0.030	/	1.77	0.026	0.87						No	Not detected
Toxaphene	1.00 - 1.10	0 / 3			0.0020	/	550	0.52	258						No	Not detected
Inorganics (UG/L)	1.00 - 1.10	0 7 3			0.0020	/	330	0.32	230						110	Not actedica
Aluminum		5 / 5	3,360	IR15-TW05-09C	NSV	/	NSV	895	NSV	1886	Yes				No	Within background range
Antimony	20.0 - 20.0	0 / 5		11(13-1 W03-07C	NSV	/	NSV	10.0	NSV	3.28	103				No	No screening value, not detected
Arsenic	20.0 - 20.0	1 / 5	3.20	IR15-TW04-09C	36.0	0 / 5	0.089	8.64	0.24	5.77	No				No	Consistent with background
Barium	20.0 - 20.0	5 / 5	95.0	IR15-TW03D-09C	NSV	/	NSV	38.1	NSV	86.2	Yes				No	Within background range
Beryllium	2.00 - 2.00	1 / 5	0.18	IR15-TW03D-09C	NSV	/	NSV	0.84	NSV	0.308	No				No	Consistent with background
Cadmium	6.00 - 6.00	0 / 5	0.16		8.80	/	0.68	3.00	0.34	0.358					No	HQ less than one, not detected
Calcium ³									+		+					
	20.0 20.0	5 / 5	45,500	IR15-TW04-09C	NSV	/	NSV	24,638	NSV	69078	No Yee				No	Macronutrient
Chromium	20.0 - 20.0	2 / 5	5.00	IR15-TW05-09C	50.0	0 / 5	0.10	7.34	0.15	3.13	Yes				No	HQ less than one, detected
Cobalt	5.00 - 5.00	4 / 5	3.90	IR15-TW01-09C	NSV	/	NSV	2.06	NSV 1.00	3.4	Yes				No	Within background range
Copper	20.0 - 20.0	3 / 5	3.80	IR15-TW05-09C	3.10	1 / 5	1.23	5.90	1.90	2.76	Yes				No	Within background range
Iron	20.0 20.0	5 / 5	25,800	IR15-TW01-09C	NSV	/	NSV	9,360	NSV	5999	Yes				No	Within background range
Lead	20.0 - 20.0	0 / 5			8.10	/	2.47	10.0	1.23	2.80					No	Not detected
Magnesium ³		5 / 5	4,620	IR15-TW03D-09C	NSV	/	NSV	2,081	NSV	6363	No				No	Macronutrient
Manganese		5 / 5	439	IR15-TW01-09C	NSV	/	NSV	146	NSV	214	Yes				No	Within background range
Mercury	0.20 - 0.20	0 / 5			0.94	/	0.21	0.10	0.11	0.1					No	HQ less than one, not detected
Nickel	10.0 - 10.0	4 / 5	30.0	IR15-TW01-09C	8.20	3 / 5	3.66	14.1	1.72	7.97	Yes				No	Within background range
Potassium ³		5 / 5	2,540	IR15-TW02-09C	NSV	/	NSV	1,370	NSV	3277	No				No	Macronutrient
Selenium	20.0 - 20.0	0 / 5			71.0	/	0.28	10.0	0.14	3.14					No	HQ less than one, not detected
Silver	20.0 - 20.0	0 / 5			0.23	/	87.0	10.0	43	0.77					No	Not detected

ERS Groundwater Screen for Site 15 Camp Johnson Consutrcion Area Focused PA/SI

MCB Camp Lejeune, North Carolina

Chemical	Range of Non- Detect Values	Frequency of Detection	Maximum Concentration Detected	Sample ID of Maximum Detected Concentration	Screening Value ¹	Frequency of Exceedance ²	Maximum Hazard Quotient	Arithmetic Mean Concentration	Mean Hazard Quotient	2 x Mean Background	Exceeds 2 x Mean Background?	Supplemental Screening Value	Supplemental Screening Value Source	Supplemental Screening Value Maximum HQ	Retain?	Rationale
Sodium ³		5 / 5	8,000	IR15-TW03D-09C	NSV	/	NSV	4,426	NSV	22508	No				No	Macronutrient
Thallium	30.0 - 30.0	1 / 5	3.20	IR15-TW04-09C	21.3	0 / 5	0.15	12.6	0.59	3.78	No				No	Consistent with background
Vanadium	50.0 - 50.0	0 / 5			NSV	/	NSV	25.0	NSV	4.72					No	No screening value, not detected
Zinc		5 / 5	10.9	IR15-TW03D-09C	81.0	0 / 5	0.13	7.60	0.09	42.1	No				No	Consistent with background
Dissolved Metals (UG/L)																
Aluminum, Dissolved	1,000 - 1,000	2 / 5	629	IR15-TW03D-09C	NSV	/	NSV	434	NSV	1886	No				No	Consistent with background
Antimony, Dissolved	20.0 - 20.0	0 / 5			NSV	/	NSV	10.0	NSV	3.28					No	No screening value, not detected
Arsenic, Dissolved	20.0 - 20.0	0 / 5			36.0	/	0.56	10.0	0.28	5.77					No	HQ less than one, not detected
Barium, Dissolved	20.0 - 20.0	4 / 5	96.8	IR15-TW03D-09C	NSV	/	NSV	35.5	NSV	86.2	Yes				No	Within background range
Beryllium, Dissolved	2.00 - 2.00	2 / 5	0.21	IR15-TW03D-09C	NSV	/	NSV	0.66	NSV	0.308	No				No	Consistent with background
Cadmium, Dissolved	6.00 - 6.00	0 / 5			8.80	/	0.68	3.00	0.34	0.358					No	HQ less than one, not detected
Calcium, Dissolved ³		5 / 5	44,100	IR15-TW04-09C	NSV	/	NSV	23,938	NSV	69078	No				No	Macronutrient
Chromium, Dissolved	20.0 - 20.0	0 / 5			50.0	/	0.40	10.0	0.20	3.13					No	HQ less than one, not detected
Cobalt, Dissolved	5.00 - 5.00	4 / 5	3.10	IR15-TW01-09C	NSV	/	NSV	1.58	NSV	3.4	No				No	Consistent with background
Copper, Dissolved	20.0 - 20.0	3 / 5	4.60	IR15-TW02-09C	3.10	1 / 5	1.48	6.00	1.94	2.76	Yes				No	Within background range
Iron, Dissolved		5 / 5	20,500	IR15-TW01-09C	NSV	/	NSV	7,426	NSV	5999	Yes				No	Within background range
Lead, Dissolved	20.0 - 20.0	0 / 5			8.10	/	2.47	10.0	1.23	2.8					No	Not detected
Magnesium, Dissolved ³		5 / 5	4,740	IR15-TW03D-09C	NSV	/	NSV	2,042	NSV	6363	No				No	Macronutrient
Manganese, Dissolved		5 / 5	236	IR15-TW01-09C	NSV	/	NSV	108	NSV	214	Yes				No	Within background range
Mercury, Dissolved	0.20 - 0.20	0 / 5			0.94	/	0.21	0.10	0.11	0.1					No	HQ less than one, not detected
Nickel, Dissolved	10.0 - 10.0	3 / 5	25.0	IR15-TW01-09C	8.20	/	1.22	13.7	1.67	7.97	Yes				No	Within background range
Potassium, Dissolved ³		5 / 5	2,460	IR15-TW02-09C	NSV	/	NSV	1,284	NSV	3277	No				No	Macronutrient
Selenium, Dissolved	20.0 - 20.0	0 / 5			71.0	/	0.28	10.0	0.14	3.14					No	HQ less than one, not detected
Silver, Dissolved	20.0 - 20.0	0 / 5			0.23	/	86.96	10.0	43	0.77					No	Not detected
Sodium, Dissolved ³		5 / 5	8,120	IR15-TW03D-09C	NSV	/	NSV	4,380	NSV	22508	No				No	Macronutrient
Thallium, Dissolved	30.0 - 30.0	0 / 5			21.3	/	1.41	15.0	0.70	3.78					No	Not detected
Vanadium, Dissolved	50.0 - 50.0	0 / 5			NSV	/	NSV	25.0	NSV	4.72					No	No screening value, not detected
Zinc, Dissolved	50.0 - 50.0	2 / 5	12.1	IR15-TW03D-09C	81.0	/	0.62	19.4	0.24	42.1	No				No	Consistent with background

NOTES

- 1 Marine screening values
- Count of detected samples exceeding or equaling Screening Value
 Macronutrient Not considered to be a contaminant of potential concern (COPC)

UG/L - Micrograms per liter NSV - No Screening Value Generated by: Sara Kent Checked by: Kelly Taylor

Table F-7
ERS Surface Soil Screen for Site 17
Camp Johnson Consutrcion Area
Focused PA/SI
MCB Camp Leieune. North Carolina

MCB Camp Lejeune, North Carolina Chemical	Range of Non- Detect Values	Frequency of Detection	Maximum Concentration Detected	Sample ID of Maximum Detected Concentration	Screening Value	Frequency of Exceedance ¹	Maximum HQ	Arithmetic Mean Concentration	Mean HQ	2 x Mean Background	Maximum Exceeds 2 x Mean Background?	Supplemental Screening Value	Supplemental Screening Value Source	Supplemental Screening Value Hazard Quotient	Retain?	Rationale
Volatile Organic Compounds (UG/KG)	Detect values	Detection	Dottodica	Dototou Concontitution	valuo	Exceedance	1.10	Concontration	mountie	Buonground	Background:	Coroning value	004100	Tidzara Caotioni	Rotairi	Tattonato
1.1.1-Trichloroethane	4.60 - 6.50	0 / 4			100	/	0.065	2.66	0.027						No	HQ less than one, not detected
1,1,2,2-Tetrachloroethane	4.60 - 6.50	0 / 4			100	/	0.065	2.66	0.027						No	HQ less than one, not detected
, , ,	4.60 - 6.50	0 / 4				· ·	NSV	2.66	NSV							
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon-113) 1,1,2-Trichloroethane	4.60 - 6.50	0 / 4			NSV 100	/	0.065	2.66	0.027						No	No screening value, not detected HQ less than one, not detected
, ,					100	/									No	
1,1-Dichloroethane	4.60 - 6.50	0 / 4			100	/	0.065	2.66	0.027						No	HQ less than one, not detected
1,1-Dichloroethene	4.60 - 6.50	0 / 4			100	/	0.065	2.66	0.027						No	HQ less than one, not detected
1,2,4-Trichlorobenzene	4.60 - 6.50	0 / 4			10.0	/	0.65	2.66	0.27						No	HQ less than one, not detected
1,2-Dibromo-3-chloropropane	4.60 - 6.50	0 / 4			NSV	/	NSV	2.66	NSV						No	No screening value, not detected
1,2-Dibromoethane	4.60 - 6.50	0 / 4			NSV	/	NSV	2.66	NSV						No	No screening value, not detected
1,2-Dichlorobenzene	4.60 - 6.50	0 / 4			10.0	/	0.65	2.66	0.27						No	HQ less than one, not detected
1,2-Dichloroethane	4.60 - 6.50	0 / 4			400	/	0.016	2.66	0.007						No	HQ less than one, not detected
1,2-Dichloropropane	4.60 - 6.50	0 / 4			700,000	/	9.29E-06	2.66	0.000						No	HQ less than one, not detected
1,3-Dichlorobenzene	4.60 - 6.50	0 / 4			10.0	/	0.65	2.66	0.27						No	HQ less than one, not detected
1,4-Dichlorobenzene	4.60 - 6.50	0 / 4			10.0	/	0.65	2.66	0.27						No	HQ less than one, not detected
2-Butanone	11.0 - 11.0	4 / 5	23.0	IR17-SS04-00-01-09C	NSV	/	NSV	10.1	NSV			89,600	Buchman, 2008	8.48E-05	No	Supplemental HQ less than one, comm Lab contaminant
2-Hexanone	9.20 - 13.0	0 / 4			NSV	/	NSV	5.36	NSV						No	No screening value, not detected
4-Methyl-2-pentanone	9.20 - 13.0	0 / 4			NSV	/	NSV	5.36	NSV						No	No screening value, not detected
Acetone	11.0 - 11.0	4 / 5	900	IR17-SS04-00-01-09C	NSV	/	NSV	346	NSV			2500	Buchman, 2008	4.45E-02	No	Supplemental HQ less than one, comm lab contaminant
Benzene	4.60 - 6.50	0 / 4			50.0	/	0.13	2.66	0.053						No	HQ less than one, not detected
Bromodichloromethane	4.60 - 6.50	0 / 4			NSV	/	NSV	2.66	NSV						No	No screening value, not detected
Bromoform	4.60 - 6.50	0 / 4			NSV	/	NSV	2.66	NSV						No	No screening value, not detected
Bromomethane	9.20 - 11.0	0 / 3			NSV	/	NSV	4.98	NSV						No	No screening value, not detected
Carbon disulfide	4.60 - 6.50	0 / 4			NSV	/	NSV	2.66	NSV						No	No screening value, not detected
Carbon tetrachloride	4.60 - 6.50	0 / 4			1,000,000	/	6.50E-06	2.66	2.663E-06						No	HQ less than one, not detected
Chlorobenzene	4.60 - 6.50	0 / 4			50.0	/	0.13	2.66	0.053						No	HQ less than one, not detected
Chloroethane	9.20 - 13.0	0 / 4			100	/	0.13	5.36	0.054						No	HQ less than one, not detected
Chloroform	4.80 - 6.50	1 / 4	13.0	IR17-SS02-00-01-09C	1.00	1 / 4	13.0	5.34	5.34						No	Common lab contaminant
Chloromethane	9.20 - 11.0	1 / 4	6.50	IR17-SS01-00-01-09C	NSV	/	NSV	5.36	NSV			10,400	Buchman, 2008	5.11E-04	No	Supplemental HQ less than one
cis-1,2-Dichloroethene	4.60 - 6.50	0 / 4			NSV	/	NSV	2.66	NSV						No	No screening value, not detected
cis-1,3-Dichloropropene	4.60 - 6.50	0 / 4			NSV	/	NSV	2.66	NSV						No	No screening value, not detected
Cyclohexane	4.60 - 6.50	0 / 4			100	/	0.065	2.66	0.027						No	HQ less than one, not detected
Dibromochloromethane	4.60 - 6.50	0 / 4			NSV	/	NSV	2.66	NSV						No	No screening value, not detected
Dichlorodifluoromethane (Freon-12)	4.60 - 6.50	0 / 4			NSV	/	NSV	2.66	NSV						No	No screening value, not detected
Ethylbenzene	4.60 - 6.50	0 / 4			50.0	/	0.13	2.66	0.053						No	HQ less than one, not detected
Isopropylbenzene	4.60 - 6.50	0 / 4			NSV	/	NSV	2.66	NSV						No	No screening value, not detected
Methyl acetate	6.50 - 6.50	4 / 5	70.0	IR17-SS04-00-01-09C	NSV	/	NSV	17.6	NSV						No	Uncertainty, no screening value
Methylcyclohexane	4.60 - 6.50	0 / 4			NSV	/	NSV	2.66	NSV						No	No screening value, not detected
Methylene chloride	9.20 - 13.0	0 / 4			2,000	/	0.0065	5.36	0.003						No	HQ less than one, not detected
Methyl-tert-butyl ether (MTBE)	4.60 - 6.50	0 / 4			NSV	/	NSV	2.66	NSV						No	No screening value, not detected
Styrene	4.60 - 6.50	0 / 4			100	/	0.065	2.66	0.027						No	HQ less than one, not detected
Tetrachloroethene	4.60 - 6.50	0 / 4			10.0	/	0.65	2.66	0.27						No	HQ less than one, not detected
Toluene	4.60 - 6.50	0 / 4			50.0	/	0.13	2.66	0.053						No	HQ less than one, not detected
trans-1,2-Dichloroethene	4.60 - 6.50	0 / 4			100	/	0.065	2.66	0.027						No	HQ less than one, not detected
trans-1,3-Dichloropropene	4.60 - 6.50	0 / 4			NSV	/	NSV	2.66	NSV						No	No screening value, not detected
Trichloroethene	4.60 - 6.50	0 / 4			1.00	/	6.50	2.66	2.66						No	Not detected
Trichlorofluoromethane(Freon-11)	4.60 - 6.50	0 / 4		+	NSV	/	NSV	2.66	NSV						No	No screening value, not detected

Table F-7
ERS Surface Soil Screen for Site 17
Camp Johnson Consutrcion Area
Focused PA/SI

MCB Camp Lejeune, North Carolina																
Chemical	Range of Non- Detect Values	Frequency of Detection	Maximum Concentration Detected	Sample ID of Maximum Detected Concentration	Screening Value	Frequency of Exceedance ¹	Maximum HQ	Arithmetic Mean Concentration	Mean HQ	2 x Mean Background	Maximum Exceeds 2 x Mean Background?	Supplemental Screening Value	Supplemental Screening Value Source	Supplemental Screening Value Hazard Quotient	Retain?	Rationale
Vinyl chloride	9.20 - 13.0	0 / 4			10.0	/	1.30	5.36	0.54						No	Not detected
Xylene, total	4.60 - 6.50	0 / 4			50.0	/	0.13	2.66	0.053						No	HQ less than one, not detected
Semivolatile Organic Compounds (UG/KG)	<u> </u>	1	<u> </u>		I		ı	l .	I	1				<u> </u>	l	·
1,1-Biphenyl	180 - 240	0 / 5			60,000	/	0.0040	96.0	0.002						No	HQ less than one, not detected
2,2'-Oxybis(1-chloropropane)	180 - 240	0 / 5			NSV	/	NSV	96.0	NSV						No	No screening value, not detected
2,4,5-Trichlorophenol	180 - 240	0 / 5			4,000	/	0.060	96.0	0.024						No	HQ less than one, not detected
2,4-Dichlorophenol	180 - 240	0 / 5			3.00	/	80.0	96.0	32						No	Not detected
2,4-Dimethylphenol	180 - 240	0 / 5			NSV	/	NSV	96.0	NSV						No	No screening value, not detected
2,4-Dinitrophenol	180 - 240	0 / 5			20,000	/	0.012	96.0	0.005						No	HQ less than one, not detected
2,4-Dinitrotoluene	180 - 240	0 / 5			NSV	/	NSV	96.0	NSV						No	No screening value, not detected
2,6-Dinitrotoluene	180 - 240	0 / 5			NSV	/	NSV	96.0	NSV						No	No screening value, not detected
2-Chloronaphthalene	180 - 240	0 / 5			1,000	/	0.24	96.0	0.096						No	HQ less than one, not detected
2-Chlorophenol	180 - 240	0 / 5			10.0	/	24.0	96.0	9.6						No	Not detected
2-Methylnaphthalene	180 - 240	0 / 5			29,000	/	0.0083	96.0	0.003						No	HQ less than one, not detected
2-Methylphenol	180 - 240	0 / 5			500	/	0.48	96.0	0.19						No	HQ less than one, not detected
2-Nitroaniline	180 - 240	0 / 5			NSV	/	NSV	96.0	NSV						No	No screening value, not detected
2-Nitrophenol	180 - 240	0 / 5			NSV	/	NSV	96.0	NSV						No	No screening value, not detected
3,3'-Dichlorobenzidine	180 - 240	0 / 5			NSV	/	NSV	96.0	NSV						No	No screening value, not detected
3-Nitroaniline	180 - 240	0 / 5			NSV	/	NSV	96.0	NSV						No	No screening value, not detected
4,6-Dinitro-2-methylphenol	180 - 240	0 / 5			NSV	/	NSV	96.0	NSV						No	No screening value, not detected
4-Bromophenyl-phenylether	180 - 240	0 / 5			NSV	/	NSV	96.0	NSV						No	No screening value, not detected
4-Chloro-3-methylphenol	180 - 240	0 / 5			NSV	/	NSV	96.0	NSV						No	No screening value, not detected
4-Chloroaniline	180 - 240	0 / 5			20,000	/	0.012	96.0	0.005						No	HQ less than one, not detected
4-Chlorophenyl-phenylether	180 - 240	0 / 5			NSV	/	NSV	96.0	NSV						No	No screening value, not detected
4-Methylphenol	180 - 240	0 / 5			500	/	0.48	96.0	0.19						No	HQ less than one, not detected
4-Nitroaniline	180 - 240	0 / 5			NSV	/	NSV	96.0	NSV						No	No screening value, not detected
4-Nitrophenol	180 - 240	0 / 5			7,000	/	0.034	96.0	0.014						No	HQ less than one, not detected
Acenaphthene	180 - 240	0 / 5			29,000	/	0.0083	96.0	0.003						No	HQ less than one, not detected
Acenaphthylene	180 - 240	0 / 5			29,000	/	0.0083	96.0	0.003						No	HQ less than one, not detected
Acetophenone	180 - 240	0 / 5			NSV	/	NSV	96.0	NSV						No	Not detected, no screening value
Anthracene	180 - 240	0 / 5			29,000	/	0.0083	96.0	0.003						No	HQ less than one, not detected
Atrazine	180 - 240	0 / 5			0.050	/	4,800	96.0	1920						No	Not detected
Benzaldehyde	180 - 240	0 / 5			NSV	/	NSV	96.0	NSV						No	No screening value, not detected
Benzo(a)anthracene	35.0 - 49.0	0 / 5			1,100	/	0.045	19.1	0.017						No	HQ less than one, not detected
Benzo(a)pyrene	35.0 - 49.0	0 / 5			1,100	/	0.045	19.1	0.017						No	HQ less than one, not detected
Benzo(b)fluoranthene	35.0 - 49.0	0 / 5			1,100	/	0.045	19.1	0.017						No	HQ less than one, not detected
Benzo(g,h,i)perylene	180 - 240	0 / 5			1,100	/	0.22	96.0	0.087						No	HQ less than one, not detected
Benzo(k)fluoranthene	180 - 240	0 / 5			1,100	/	0.22	96.0	0.087						No	HQ less than one, not detected
bis(2-Chloroethoxy)methane	180 - 240	0 / 5			NSV	/	NSV	96.0	NSV						No	No screening value, not detected
bis(2-Chloroethyl)ether	180 - 240	0 / 5			NSV	/	NSV	96.0	NSV						No	No screening value, not detected
bis(2-Ethylhexyl)phthalate	180 - 180	1 / 5	96.0	IR17-SS01-00-01-09C	100	0 / 5	0.96	91.2	0.912						No	HQ less than one, detected
Butylbenzylphthalate	180 - 240	0 / 5			100	/	2.40	96.0	0.96						No	Not detected
Caprolactam	180 - 240	0 / 5			NSV	/	NSV	96.0	NSV						No	No screening value, not detected
Carbazole	180 - 240	0 / 5			NSV	/	NSV	96.0	NSV						No	No screening value, not detected
Chrysene	180 - 240	0 / 5			1,100	/	0.22	96.0	0.087						No	HQ less than one, not detected
Dibenz(a,h)anthracene	35.0 - 49.0	0 / 5			1,100	/	0.045	19.1	0.017						No	HQ less than one, not detected
Dibenzofuran	180 - 240	0 / 5			NSV	/	NSV	96.0	NSV						No	No screening value, not detected
Diethylphthalate	180 - 240	0 / 5			100,000	/	0.0024	96.0	0.001						No	HQ less than one, not detected
Dimethyl phthalate	180 - 240	0 / 5			200,000	/	0.0024	96.0	0.000						No	HQ less than one, not detected
Dimenty phinade	100 - 240	010			200,000	/	0.0012	70.0	0.000						INU	The 1633 than one, not detected

Table F-7ERS Surface Soil Screen for Site 17
Camp Johnson Consutrcion Area
Focused PA/SI

MCB Camp Lejeune, Norti	h Carolina
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мсв Camp Lejeune, North Carolina			Maximum								Maximum		Supplemental	Supplemental	
	Range of Non-	Frequency of	Concentration	Sample ID of Maximum	Screening	Frequency of	Maximum	Arithmetic Mean		2 x Mean	Exceeds 2 x Mean	Supplemental	Screening Value	Screening Value	
Chemical	Detect Values	Detection	Detected	Detected Concentration	Value	Exceedance ¹	HQ	Concentration	Mean HQ	Background	Background?	Screening Value	Source		Rationale
Di-n-butylphthalate	180 - 180	1 / 5	93.0	IR17-SS01-00-01-09C	200,000	0 / 5	4.65E-04	90.6	0.000					No	HQ less than one, detected
Di-n-octylphthalate	180 - 240	0 / 5			100	/	2.40	96.0	0.96					No	Not detected
Fluoranthene	180 - 240	0 / 5			1,100	/	0.22	96.0	0.087					No	HQ less than one, not detected
Fluorene	180 - 240	0 / 5			29,000	/	0.0083	96.0	0.003					No	HQ less than one, not detected
Hexachlorobenzene	180 - 240	0 / 5			2.50	/	96.0	96.0	38					No	Not detected
Hexachlorobutadiene	180 - 240	0 / 5			NSV	/	NSV	96.0	NSV					No	No screening value, not detected
Hexachlorocyclopentadiene	180 - 240	0 / 5			10,000	/	0.024	96.0	0.010					No	HQ less than one, not detected
Hexachloroethane	180 - 240	0 / 5			100	/	2.40	96.0	0.96					No	Not detected
Indeno(1,2,3-cd)pyrene	35.0 - 49.0	0 / 5			1,100	/	0.045	19.1	0.017					No	HQ less than one, not detected
Isophorone	35.0 - 49.0	0 / 5			NSV	/	NSV	19.1	NSV					No	No screening value, not detected
Naphthalene	180 - 240	0 / 5			29,000	/	0.0083	96.0	0.003					No	HQ less than one, not detected
n-Nitroso-di-n-propylamine	35.0 - 49.0	0 / 5			NSV	/	NSV	19.1	NSV					No	No screening value, not detected
n-Nitrosodiphenylamine	180 - 240	0 / 5			20,000	/	0.012	96.0	0.005					No	HQ less than one, not detected
Nitrobenzene	180 - 240	0 / 5			40,000	/	0.0060	96.0	0.002					No	HQ less than one, not detected
Pentachlorophenol	180 - 240	0 / 5			2,100	/	0.11	96.0	0.046					No	HQ less than one, not detected
Phenanthrene	180 - 240	0 / 5			29,000	/	0.0083	96.0	0.003					No	HQ less than one, not detected
Phenol	180 - 240	0 / 5			50.0	/	4.80	96.0	1.92					No	Not detected
Pyrene	180 - 240	0 / 5			1,100	/	0.22	96.0	0.087					No	HQ less than one, not detected
Pesticide/Polychlorinated Biphenyls (UG/KG)				<u> </u>		I.	1	<u> </u>						<u>l</u>	
4,4'-DDD	1.70 - 2.50	0 / 5			21.0	/	0.12	0.96	0.046					No	HQ less than one, not detected
4,4'-DDE	1.80 - 1.80	4 / 5	2.20	IR17-SS05-00-01-09C	21.0	0 / 5	0.10	1.13	0.054					No	HQ less than one, detected
4,4'-DDT	1.80 - 2.50	3 / 5	1.90	IR17-SS02-00-01-09C	21.0	0 / 5	0.090	1.19	0.057					No	HQ less than one, detected
Aldrin	1.70 - 2.50	0 / 5			2.50	/	1.00	0.96	0.38					No	HQ less than one, detected
alpha-BHC	1.70 - 2.50	0 / 5			2.50	/	1.00	0.96	0.38					No	HQ less than one, detected
alpha-Chlordane	1.70 - 2.50	0 / 5			100	/	0.025	0.96	0.010					No	HQ less than one, not detected
Aroclor-1016	17.0 - 24.0	0 / 5			20.0	/	1.20	9.20	0.46					No	Not detected
Aroclor-1221	17.0 - 24.0	0 / 5			20.0	/	1.20	9.20	0.46					No	Not detected
Aroclor-1232	17.0 - 24.0	0 / 5			20.0	/	1.20	9.20	0.46					No	Not detected
Aroclor-1242	17.0 - 24.0	0 / 5			20.0	/	1.20	9.20	0.46					No	Not detected
Aroclor-1248	17.0 - 24.0	0 / 5			20.0	/	1.20	9.20	0.46					No	Not detected
Aroclor-1254	17.0 - 24.0	0 / 5			20.0	/	1.20	9.20	0.46					No	Not detected
Aroclor-1260	17.0 - 24.0	0 / 5			20.0	/	1.20	9.20	0.46					No	Not detected
beta-BHC	1.70 - 2.50	0 / 5			1.00	/	2.50	0.96	0.96					No	Not detected
delta-BHC	1.70 - 2.50	0 / 5			100	/	0.025	0.96	0.010					No	HQ less than one, not detected
Dieldrin	1.70 - 2.50	0 / 5			4.90	/	0.51	0.96	0.20					No	HQ less than one, not detected
Endosulfan I	1.70 - 2.50	0 / 5			100	/	0.025	0.96	0.010					No	HQ less than one, not detected
Endosulfan II	1.70 - 2.50	0 / 5			100	/	0.025	0.96	0.010					No	HQ less than one, not detected
Endosulfan sulfate	1.70 - 2.50	0 / 5			100	/	0.025	0.96	0.010					No	HQ less than one, not detected
Endrin	1.70 - 2.50	0 / 5			1.00	/	2.50	0.96	0.96					No	Not detected
Endrin aldehyde	1.70 - 2.50	0 / 5			100	/	0.025	0.96	0.010					No	HQ less than one, not detected
Endrin ketone	1.70 - 2.50	0 / 5			100	/	0.025	0.96	0.010					No	HQ less than one, not detected
gamma-BHC (Lindane)	1.70 - 2.50	0 / 5			0.050	/	50.0	0.96	19					No	Not detected
gamma-Chlordane	1.70 - 2.50	0 / 5			100	/	0.025	0.96	0.010					No	HQ less than one, not detected
Heptachlor	1.70 - 2.50	0 / 5			100	/	0.025	0.96	0.010					No	HQ less than one, not detected
Heptachlor epoxide	1.70 - 2.50	0 / 5			100	/	0.025	0.96	0.010					No	HQ less than one, not detected
Methoxychlor	1.70 - 2.50	0 / 5			100	/	0.025	0.96	0.010					No	HQ less than one, not detected
Toxaphene	35.0 - 49.0	0 / 5			100	/	0.49	19.1	0.19					No	HQ less than one, not detected
Inorganics (MG/KG)	L	1		1			1				•				- -
Aluminum		5 / 5	7,580	IR17-SS01-00-01-09C	50.0	5 / 5	152	6,276	126	5,487	Yes			No	Within background range
Ш		ı		<u> </u>		1	1	1	l .	· · · · · · · · · · · · · · · · · · ·	I	l .		1 1	

Table F-7ERS Surface Soil Screen for Site 17
Camp Johnson Consutrcion Area

MCB Camp Lejeune, North Carolina

Focused PA/SI

Chemical	Range of Non- Detect Values	Frequency of Detection	Maximum Concentration Detected	Sample ID of Maximum Detected Concentration	Screening Value	Frequency of Exceedance ¹	Maximum HQ	Arithmetic Mean Concentration	Mean HQ	2 x Mean Background	Maximum Exceeds 2 x Mean Background?	Supplemental Screening Value	Supplemental Screening Value Source	Supplemental Screening Value Hazard Quotient	Retain?	Rationale
Antimony	1.50 - 2.10	0 / 5			0.27	/	7.78	0.81	3	0.447					No	Not detected
Arsenic		5 / 5	4.90	IR17-SS01-00-01-09C	18.0	0 / 5	0.27	2.20	0.12	0.626	Yes				No	HQ less than one, detected
Barium		5 / 5	21.3	IR17-SS02-00-01-09C	330	0 / 5	0.065	16.6	0.050	14.5	Yes				No	Wtithin background range
Beryllium	0.15 - 0.21	3 / 5	0.16	IR17-SS02-00-01-09C	21.0	0 / 5	0.0076	0.12	0.006	0.10	Yes				No	HQ less than one, detected
Cadmium	0.44 - 0.64	1 / 5	0.020	IR17-SS02-00-01-09C	0.36	0 / 5	0.056	0.20	0.56	0.033	No				No	Consistent with background
Calcium ²		5 / 5	372	IR17-SS01-00-01-09C	NSV	/	NSV	189	NSV	6360	No				No	Consistent with background
Chromium		5 / 5	8.30	IR17-SS01-00-01-09C	26.0	0 / 5	0.32	4.36	0.17	6.05	Yes				No	Within background range
Cobalt	0.54 - 0.54	4 / 5	0.33	IR17-SS04-00-01-09C	13.0	0 / 5	0.025	0.28	0.022	0.29	Yes				No	Within background range
Copper		5 / 5	1.00	IR17-SS01-00-01-09C	28.0	0 / 5	0.036	0.87	0.031	4.83	No				No	Consistent with background
Iron		5 / 5	7,640	IR17-SS01-00-01-09C	200	5 / 5	38.2	3,036	15	3245	Yes				No	Within background range
Lead		5 / 5	17.1	IR17-SS01-00-01-09C	11.0	1 / 5	1.55	10.4	0.94	12.3	Yes				No	Within background range
Magnesium ²		5 / 5	667	IR17-SS01-00-01-09C	NSV	/	NSV	277	NSV	238	Yes				No	Macronutrient
Manganese		5 / 5	10.8	IR17-SS04-00-01-09C	220	0 / 5	0.049	8.76	0.040	13.7	No				No	Consistent with background
Mercury	0.033 - 0.033	2 / 5	0.052	IR17-SS01-00-01-09C	0.10	0 / 5	0.52	0.029	0.29	0.081	No				No	Consistent with background
Nickel		5 / 5	2.00	IR17-SS02-00-01-09C	38.0	0 / 5	0.053	1.56	0.041	1.21	Yes				No	HQ less than one, detected
Potassium ²		5 / 5	495	IR17-SS01-00-01-09C	NSV	/	NSV	195	NSV	116	Yes				No	Macronutrient
Selenium	1.50 - 1.50	1 / 5	0.69	IR17-SS01-00-01-09C	0.52	1 / 5	1.33	0.74	1.42	0.56	Yes				No	Within background range
Silver	1.50 - 1.50	1 / 5	0.40	IR17-SS01-00-01-09C	4.20	0 / 5	0.095	0.68	0.16	0.14	Yes				No	Within background range
Sodium ²	188 - 188	4 / 5	1,870	IR17-SS01-00-01-09C	NSV	/	NSV	404	NSV	80.9	Yes				No	Macronutrient
Thallium	2.20 - 3.20	0 / 5			1.00	/	3.20	1.23	1.23	0.4					No	Not detected
Vanadium		5 / 5	20.8	IR17-SS01-00-01-09C	7.80	1 / 5	2.67	9.16	1.17	8.9	Yes				No	Within background range
Zinc	5.40 - 5.40	4 / 5	5.20	IR17-SS02-00-01-09C	46.0	0 / 5	0.11	4.34	0.094	10.8	No				No	Consistent with background

NOTES

1 - Count of detected samples exceeding or equaling Screening Value

2 - Macronutrient - Not considered to be a contaminant of potential concern (COPC)

HQ - Hazard Quotient

NSV - No Screening Value

MG/KG - Milligrams per kilogram UG/KG - Micrograms per kilogram

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Table F-8
ERS Subsurface Soil Screen for Site 17
Camp Johnson Consutrcion Area
Focused PA/SI

			Maximum				Maximum		Mean		Maximum			Supplemental		
Chamical	Range of Non-		Concentration	Sample ID of Maximum	Screening	Frequency of	Hazard	Arithmetic Mean	Hazard	2 x Mean	Exceeds 2 x Mean		Supplemental Screening	Screening Value	Dotoin?	Detionals
Chemical	Detect Values	Detection	Detected	Detected Concentration	Value	Exceedance'	Quotient	Concentration	Quotient	Background	Background?	Screening Value	Value Source	Hazard Quotient	Retain?	Rationale
Volatile Organic Compounds (UG/KG)	1			1			1		1	T	Т	T	1			Tue.
1,1,1-Trichloroethane	1.40 - 2.20	0 / 5			100	/	0.022	0.91	0.009						No	HQ less than one, not detected
1,1,2,2-Tetrachloroethane	1.40 - 2.20	0 / 5			100	/	0.022	0.91	0.009						No	HQ less than one, not detected
1,1,2-Trichloro-1,2,2-trifluoroethane(Freon-113)	1.40 - 2.20	0 / 5			NSV	/	NSV	0.91	NSV						No	No screening value, not detected
1,1,2-Trichloroethane	1.40 - 2.20	0 / 5			100	/	0.022	0.91	0.009						No	HQ less than one, not detected
1,1-Dichloroethane	1.40 - 2.20	0 / 5			100	/	0.022	0.91	0.009						No	HQ less than one, not detected
1,1-Dichloroethene	1.40 - 2.20	0 / 5			100	/	0.022	0.91	0.009						No	HQ less than one, not detected
1,2,4-Trichlorobenzene	1.40 - 2.00	1 / 5	1.10	IR17-SB01-2-4-09C	10.0	0 / 5	0.11	0.91	0.09						No	HQ less than one, detected
1,2-Dibromo-3-chloropropane	1.40 - 2.00	1 / 5	1.60	IR17-SB01-2-4-09C	NSV	/	NSV	1.01	NSV						No	Uncertainty, no screening value
1,2-Dibromoethane	1.40 - 2.20	0 / 5			NSV	/	NSV	0.91	NSV						No	No screening value, not detected
1,2-Dichlorobenzene	1.40 - 2.20	0 / 5			10.0	/	0.22	0.91	0.091						No	HQ less than one, not detected
1,2-Dichloroethane	1.40 - 2.20	0 / 5			400	/	0.0055	0.91	0.002						No	HQ less than one, not detected
1,2-Dichloropropane	1.40 - 2.20	0 / 5			700,000	/	3.14E-06	0.91	1.300E-06						No	HQ less than one, not detected
1,3-Dichlorobenzene	1.40 - 2.20	0 / 5			10.0	/	0.22	0.91	0.091						No	HQ less than one, not detected
																HQ less than one, not detected
1,4-Dichlorobenzene	1.40 - 2.20	0 / 5			10.0	/	0.22	0.91	0.091						No	
0.5.1	0.00	0 : -		ID47 6500 0						1			D /	F		Supplemental HQ less than one, common lab
2-Butanone	2.90 - 3.50	2 / 5	2.60	IR17-SB03-2-7-09C	NSV	/	NSV	1.77	NSV			89,600	Buchman, 2008	5.42E-06	No	contaminant
2-Hexanone	2.90 - 4.40	0 / 5			NSV	/	NSV	1.80	NSV						No	No screening value, not detected
4-Methyl-2-pentanone	2.90 - 4.40	0 / 5			NSV	/	NSV	1.80	NSV						No	No screening value, not detected
																Supplemental HQ less than one, common lab
Acetone	2.90 - 3.50	2 / 5	99.0	IR17-SB03-2-7-09C	NSV	/	NSV	34.8	NSV			2500	Buchman, 2008	1.86E-02	No	contaminant
Benzene	1.40 - 2.20	0 / 5			50.0	/	0.044	0.91	0.018						No	HQ less than one, not detected
Bromodichloromethane	1.40 - 2.20	0 / 5			NSV	/	NSV	0.91	NSV						No	No screening value, not detected
Bromoform	1.40 - 2.20	0 / 5			NSV	/	NSV	0.91	NSV						No	No screening value, not detected
Bromomethane	2.90 - 4.40	0 / 5			NSV	/	NSV	1.80	NSV						No	No screening value, not detected
Carbon disulfide	1.40 - 2.20	0 / 5			NSV	/	NSV	0.91	NSV						No	No screening value, not detected
																HQ less than one, not detected
Carbon tetrachloride	1.40 - 2.20	0 / 5			1,000,000	/	2.20E-06	0.91	9.100E-07						No	
Chlorobenzene	1.40 - 2.20	0 / 5			50.0	/	0.044	0.91	0.018						No	HQ less than one, not detected
Chloroethane	2.90 - 4.40	0 / 5			100	/	0.044	1.80	0.018						No	HQ less than one, not detected
Chloroform	1.70 - 2.00	2 / 5	4.90	IR17-SB01-2-4-09C	1.00	2 / 5	4.90	1.99	1.99						No	Common lab contaminant
Chloromethane	2.90 - 4.40	0 / 5			NSV	/	NSV	1.80	NSV						No	No screening value, not detected
cis-1,2-Dichloroethene	1.40 - 2.20	0 / 5			NSV	/	NSV	0.91	NSV						No	No screening value, not detected
cis-1,3-Dichloropropene	1.40 - 2.20	0 / 5			NSV	/	NSV	0.91	NSV						No	No screening value, not detected
Cyclohexane	1.40 - 2.20	0 / 5			100	/	0.022	0.91	0.009						No	HQ less than one, not detected
Dibromochloromethane	1.40 - 2.20	0 / 5			NSV	/	NSV	0.91	NSV						No	No screening value, not detected
Dichlorodifluoromethane (Freon-12)	1.40 - 2.20	0 / 5			NSV	/	NSV	0.91	NSV						No	No screening value, not detected
Ethylbenzene	1.40 - 2.20	0 / 5			50.0	/	0.044	0.91	0.018						No	HQ less than one, not detected
Isopropylbenzene	1.40 - 2.20	0 / 5			NSV	/	NSV	0.91	NSV						No	No screening value, not detected
Methyl acetate	1.40 - 1.40	4 / 5	96.0	IR17-SB03-2-7-09C	NSV	/	NSV	20.9	NSV						No	Uncertainty, no screening value
Methylcyclohexane	1.40 - 1.40	0 / 5			NSV	/	NSV	0.91	NSV						No	No screening value, not detected
			 1 E0	 ID17 CD02 2 7 00C												*
Methylene chloride	1.40 - 3.30	1 / 5	1.50	IR17-SB03-2-7-09C	2,000	0 / 5	7.50E-04	1.17	0.001						No	HQ less than one, detected
Methyl-tert-butyl ether (MTBE)	1.40 - 2.20	0 / 5			NSV	/	NSV	0.91	NSV						No	No screening value, not detected
Styrene	1.40 - 2.20	0 / 5			100	/	0.022	0.91	0.009						No	HQ less than one, not detected
Tetrachloroethene	1.40 - 2.20	0 / 5			10.0	/	0.22	0.91	0.091						No	HQ less than one, not detected
Toluene	1.40 - 2.20	0 / 5			50.0	/	0.044	0.91	0.018						No	HQ less than one, not detected
trans-1,2-Dichloroethene	1.40 - 2.20	0 / 5			100	/	0.022	0.91	0.009						No	HQ less than one, not detected
trans-1,3-Dichloropropene	1.40 - 2.20	0 / 5			NSV	/	NSV	0.91	NSV						No	No screening value, not detected
Trichloroethene	1.40 - 2.20	0 / 5			1.00	/	2.20	0.91	0.91						No	Not detected
Frichlorofluoromethane(Freon-11)	1.40 - 2.20	0 / 5			NSV	/	NSV	0.91	NSV						No	No screening value, not detected
/inyl chloride	2.90 - 3.50	0 / 4			10.0	/	0.35	1.65	0.17						No	HQ less than one, not detected
Xylene, total	1.40 - 2.20	0 / 5			50.0	/	0.044	0.91	0.018						No	HQ less than one, not detected
Semivolatile Organic Compounds (UG/KG)	1.10 2.20	010		<u> </u>	50.0	1 , -	J.UT#	0.71	0.010	1	1	1	<u> </u>		140	
• • • • •	100 220	0 / 5			60,000	1	0.004	101	0.002	1		1	<u> </u>	1	No	HQ less than one, not detected
,1-Biphenyl	190 - 220	0 / 5			60,000	/	0.004	101	0.002						No	
2,2'-Oxybis(1-chloropropane)	190 - 220	0 / 5			NSV	/	NSV	101	NSV						No	No screening value, not detected
2,4,5-Trichlorophenol	190 - 220	0 / 5			4,000	/	0.055	101	0.025						No	HQ less than one, not detected
2,4-Dichlorophenol	190 - 220	0 / 5			3.00	/	73	101	34						No	Not detected
2,4-Dimethylphenol	190 - 220	0 / 5			NSV	/	NSV	101	NSV						No	No screening value, not detected
2,4-Dinitrophenol	190 - 220	0 / 5			20,000	/	0.011	101	0.005						No	HQ less than one, not detected

Table F-8
ERS Subsurface Soil Screen for Site 17
Camp Johnson Consutrcion Area
Focused PA/SI

			Maximum				Maximum		Mean		Maximum			Supplemental		
Chemical		equency of Detection	Concentration Detected	Sample ID of Maximum Detected Concentration	Screening Value	Frequency of Exceedance ¹	Hazard Quotient	Arithmetic Mean Concentration	Hazard Quotient	2 x Mean Background	Exceeds 2 x Mear Background?	Supplemental Screening Value	Supplemental Screening Value Source	Screening Value Hazard Quotient	Retain?	Rationale
2.4-Dinitrotoluene		0 / 5			NSV	/	NSV	101	NSV				value Source		No	No screening value, not detected
2,6-Dinitrotoluene		0 / 5			NSV	/	NSV	101	NSV						No	No screening value, not detected
2-Chloronaphthalene		0 / 5			1,000	/	0.22	101	0.10						No	HQ less than one, not detected
2-Chlorophenol		0 / 5			10.0	/	22	101	10.1						No	Not detected
2-Methylnaphthalene		0 / 5			29,000	/	0.0076	101	0.003						No	HQ less than one, not detected
2-Methylphenol		0 / 5			500	/	0.44	101	0.20						No	HQ less than one, not detected
2-Nitroaniline		0 / 5			NSV	/	NSV	101	NSV						No	No screening value, not detected
2-Nitrophenol		0 / 5			NSV	/	NSV	101	NSV						No	No screening value, not detected
3,3'-Dichlorobenzidine		0 / 5			NSV	/	NSV	101	NSV						No	No screening value, not detected
3-Nitroaniline		0 / 5			NSV	/	NSV	101	NSV						No	No screening value, not detected
4,6-Dinitro-2-methylphenol		0 / 5			NSV	/	NSV	101	NSV						No	No screening value, not detected
4-Bromophenyl-phenylether		0 / 5			NSV	/	NSV	101	NSV						No	No screening value, not detected
4-Chloro-3-methylphenol		0 / 5			NSV	/	NSV	101	NSV						No	No screening value, not detected
4-Chloroaniline		0 / 5			20,000	/	0.011	101	0.005						No	HQ less than one, not detected
4-Chlorophenyl-phenylether		0 / 5			20,000 NSV	/	NSV	101	NSV						No	No screening value, not detected
4-Methylphenol		0 / 5			500	/	0.44	101	0.20						No	HQ less than one, not detected
4-Nitroaniline		0 / 5			NSV	/	NSV	101	NSV						No	No screening value, not detected
4-Nitrophenol		0 / 5			7,000	/	0.031	101	0.014						No	HQ less than one, not detected
4-Nilropnenoi Acenaphthene		0 / 5			29,000	/	0.0076	101	0.014						No	HQ less than one, not detected
Acenaphthylene		0 / 5			29,000	/	0.0076	101	0.003						No	HQ less than one, not detected
					NSV		NSV	101	NSV							No screening value, not detected
Acetophenone		0 / 5			29,000	/	0.0076	101	0.003						No No	HQ less than one, not detected
Anthracene Atrazine		0 / 5			0.050	/	4,400	101	2020						No	Not detected
		0 / 5			1,100	/	0.040	20.1	0.018						No	HQ less than one, not detected
Benzo(a)anthracene		0 / 5			1,100	/	0.040	20.1	0.018						No	HQ less than one, not detected
Benzo(a)pyrene		0 / 5			1,100	/	0.040	20.1	0.018						No	HQ less than one, not detected
Benzo(b)fluoranthene		0 / 5			1,100	/		101	0.018						No	HQ less than one, not detected
Benzo(g,h,i)perylene		0 / 5			1,100	/	0.20	101	0.092						No	HQ less than one, not detected
Benzo(k)fluoranthene		0 / 5			NSV	/	0.20 NSV	101	NSV						No	No screening value, not detected
bis(2-Chloroethoxy)methane bis(2-Chloroethyl)ether		0 / 5			NSV	/	NSV	101	NSV						No	No screening value, not detected
` ,,		0 / 5			100	/	2.20	101	1.01						No	Not detected
bis(2-Ethylhexyl)phthalate		0 / 5			100	/	2.20	101	1.01							Not detected
Butylbenzylphthalate						/	NSV								No	No screening value, not detected
Caprolactam		0 / 5			NSV			101	NSV						No	
Carbazole		0 / 5			NSV 1 100	/	NSV	101	NSV						No	No screening value, not detected HQ less than one, not detected
Chrysene Dihanz(a h)anthrasana		0 / 5			1,100	/	0.20	101	0.092						No	
Dibenz(a,h)anthracene		0 / 5			1,100	/	0.040	20.1	0.018						No	HQ less than one, not detected
Dibenzofuran		0 / 5			NSV	/	NSV	101	NSV 0.001						No	No screening value, not detected HQ less than one, not detected
Diethylphthalate		0 / 5			100,000	/	0.0022	101	0.001						No No	· ·
Dimethyl phthalate		0 / 5			200,000	/	0.0011	101	0.001						No	HQ less than one, not detected
Di-n-butylphthalate		0 / 5			200,000	/	0.0011	101	0.001						No	HQ less than one, not detected Not detected
Di-n-octylphthalate		0 / 5			100	/	2.20	101	1.01						No No	
Fluoranthene		0 / 5			1,100	/	0.20	101	0.092						No No	HQ less than one, not detected
Fluorene		0 / 5			29,000	/	0.0076	101	0.003						No No	HQ less than one, not detected
Hexachlorobenzene		0 / 5			2.50	/	88 NCV	101	40 NCV						No	Not detected No screening value, not detected
Hexachlorobutadiene		0 / 5			NSV 10.000	/	NSV	101	NSV						No	No screening value, not detected
Hexachlorocyclopentadiene		0 / 5			10,000	/	0.022	101	0.010						No	HQ less than one, not detected
Hexachloroethane		0 / 5			100	/	2.20	101	1.01						No	Not detected HO loss than ano not detected
Indeno(1,2,3-cd)pyrene		0 / 5			1,100	/	0.040	20.1	0.018						No	HQ less than one, not detected
Isophorone		0 / 5			NSV	/	NSV 0.0074	20.1	NSV						No	No screening value, not detected
Naphthalene		0 / 5			29,000	/	0.0076	101	0.003						No	HQ less than one, not detected
n-Nitroso-di-n-propylamine		0 / 5			NSV	/	NSV	20.1	NSV						No	No screening value, not detected
n-Nitrosodiphenylamine		0 / 5			20,000	/	0.011	101	0.005						No	HQ less than one, not detected
Nitrobenzene		0 / 5			40,000	/	0.0055	101	0.003						No	HQ less than one, not detected
Pentachlorophenol		0 / 5			2,100	/	0.10	101	0.048						No	HQ less than one, not detected
Phenanthrene		0 / 5			29,000	/	0.0076	101	0.003						No	HQ less than one, not detected
Phenol		0 / 5			50.0	/	4.40	101	2.02						No	Not detected
Pyrene	190 - 220	0 / 5			1,100	/	0.20	101	0.092						No	HQ less than one, not detected

Table F-8ERS Subsurface Soil Screen for Site 17
Camp Johnson Consutrcion Area
Focused PA/SI

Chemical	Range of Non- Detect Values	Frequency of Detection	Maximum Concentration Detected	Sample ID of Maximum Detected Concentration	Screening Value	Frequency of Exceedance ¹	Maximum Hazard Quotient	Arithmetic Mean Concentration	Mean Hazard Quotient	2 x Mean Background	Maximum Exceeds 2 x Mean Background?	Supplemental Screening Value	Supplemental Screening Value Source	Supplemental Screening Value Hazard Quotient	Retain?	Rationale
4,4'-DDD	1.70 - 1.70	0 / 5			21.0	/	0.081	0.85	0.040						No	HQ less than one, not detected
4,4'-DDE	1.70 - 1.70	1 / 5	0.41	IR17-SB05-2-7-09C	21.0	0 / 5	0.020	0.76	0.036						No	HQ less than one, detected
4,4'-DDT	1.70 - 1.70	0 / 5			21.0	/	0.081	0.85	0.040						No	HQ less than one, not detected
Aldrin	1.70 - 1.70	0 / 5			2.50	/	0.68	0.85	0.34						No	HQ less than one, not detected
alpha-BHC	1.70 - 1.70	0 / 5			2.50	/	0.68	0.85	0.34						No	HQ less than one, not detected
alpha-Chlordane	1.70 - 1.70	0 / 5			100	/	0.007	0.85	0.009						No	HQ less than one, not detected
Aroclor-1016	19.0 - 22.0	0 / 5			20.0	/	1.10	10.1	0.51						No	Not detected
Aroclor-1221	19.0 - 22.0	0 / 5			20.0	/	1.10	10.1	0.51						No	Not detected
Aroclor-1232	19.0 - 22.0	0 / 5			20.0	/	1.10	10.1	0.51						No	Not detected
Aroclor-1242	19.0 - 22.0	0 / 5			20.0	/	1.10	10.1	0.51						No	Not detected
Aroclor-1248	19.0 - 22.0	0 / 5			20.0	/	1.10	10.1	0.51						No	Not detected
Aroclor-1254	19.0 - 22.0	0 / 5			20.0	/	1.10	10.1	0.51						No	Not detected
Aroclor-1260	19.0 - 22.0	0 / 5			20.0	/	1.10	10.1	0.51						No	Not detected
beta-BHC	1.70 - 1.70	0 / 5			1.00	/	1.70	0.85	0.85						No	Not detected
	1.70 - 1.70	0 / 5		+	100	/	0.017	0.85	0.009						No	HQ less than one, not detected
delta-BHC Dieldrin	1.70 - 1.70	0 / 5			4.90	/	0.017	0.85	0.009						No	HQ less than one, not detected
Endosulfan I	1.70 - 1.70	0 / 5			100	/	0.35	0.85	0.17						No	HQ less than one, not detected
				+	100	/	0.017	0.85	0.009							HQ less than one, not detected
Endosulfan II Endosulfan sulfate	1.70 - 1.70	0 / 5							+						No	HQ less than one, not detected
	1.70 - 1.70	0 / 5			100	/	0.017	0.85	0.009						No	
Endrin	1.70 - 1.70	0 / 5			1.00	/	1.70	0.85	0.85						No	Not detected HQ less than one, not detected
Endrin aldehyde	1.70 - 1.70	0 / 5			100	/	0.017	0.85	0.009						No	· ·
Endrin ketone	1.70 - 1.70	0 / 5			100	/	0.017	0.85	0.009						No	HQ less than one, not detected
gamma-BHC (Lindane)	1.70 - 1.70	0 / 5			0.050	/	34.0	0.85	17						No	Not detected
gamma-Chlordane	1.70 - 1.70	0 / 5			100	/	0.017	0.85	0.009						No	HQ less than one, not detected
Heptachlor	1.70 - 1.70	0 / 5			100	/	0.017	0.85	0.009						No	HQ less than one, not detected
Heptachlor epoxide	1.70 - 1.70	0 / 5			100	/	0.017	0.85	0.009						No	HQ less than one, not detected
Methoxychlor	1.70 - 1.70	0 / 5			100	/	0.017	0.85	0.009						No	HQ less than one, not detected
Toxaphene	33.0 - 33.0	0 / 5			100	/	0.33	16.5	0.17						No	HQ less than one, not detected
Inorganics (MG/KG)	1										T	T	Τ		T	Contact the contact
Aluminum		5 / 5	20,000	IR17-SB03-2-7-09C	50.0	5 / 5	400	11,018	220	10,369	Yes				No	See text discussion
Antimony	1.60 - 1.80	1 / 5	0.93	IR17-SB01-2-4-09C	0.27	1 / 5	3.44	0.86	3.17	0.36	Yes				No	Low magnitude of exceedance
Arsenic		5 / 5	14.6	IR17-SB03-2-7-09C	18.0	0 / 5	0.81	5.31	0.30	2.12	Yes				No	HQ less than one, detected
Barium		5 / 5	21.8	IR17-SB03-2-7-09C	330	0 / 5	0.066	15.3	0.046	16.6	Yes				No	Within background range
Beryllium		5 / 5	0.31	IR17-SB03-2-7-09C	21.0	0 / 5	0.015	0.16	0.007	0.165	Yes				No	Within background range
Cadmium	0.47 - 0.55	0 / 5			0.36	/	1.53	0.26	0.71	0.023					No	Not detected
Calcium ²	84.6 - 92.0	2 / 5	227	IR17-SB04-2-7-09C	NSV	/	NSV	91.5	NSV	441	No				No	Consistent with background
																Low magnitude of exceedance, mean HQ less th
Chromium		5 / 5	35.8	IR17-SB03-2-7-09C	26.0	2 / 5	1.38	16.2	0.62	14.5	Yes				No	one
Cobalt		5 / 5	1.10	IR17-SB03-2-7-09C	13.0	0 / 5	0.085	0.58	0.044	0.822	Yes				No	HQ less than one, detected
Copper		5 / 5	5.00	IR17-SB03-2-7-09C	28.0	0 / 5	0.18	2.30	0.082	2.56	Yes				No	HQ less than one, detected
Iron		5 / 5	28,400	IR17-SB03-2-7-09C	200	5 / 5	142	11,154	56	5,439	Yes				No	Micronutrient
																Low magnitude of exceedance, HQ less than one
Lead		5 / 5	15.9	IR17-SB03-2-7-09C	11.0	1 / 5	1.45	8.36	0.76	8.49	Yes	50	Region 4 (EPA, 2001)	0.318	No	based on Region 4 screening value.
Magnesium ²		5 / 5	1,020	IR17-SB03-2-7-09C	NSV	/	NSV	492	NSV	363	Yes				No	Macronutrient
Manganese		5 / 5	13.3	IR17-SB03-2-7-09C	220	0 / 5	0.060	9.92	0.045	9.25	Yes				No	Within background range
Mercury	0.033 - 0.041	1 / 5	0.049	IR17-SB05-2-7-09C	0.10	0 / 5	0.49	0.025	0.25	0.071	No				No	Consistent with background
Nickel		5 / 5	2.70	IR17-SB03-2-7-09C	38.0	0 / 5	0.071	1.84	0.048	2.27	Yes				No	Within background range
Potassium ²		5 / 5	1,070	IR17-SB03-2-7-09C	NSV	/	NSV	508	NSV	361	Yes				No	Macronutrient
																Low magnitude of exceedance, mean HQ less th one, barely above maximum background value of
Selenium	1.60 - 1.80	1 / 5	1.40	IR17-SB03-2-7-09C	0.52	1 / 5	2.69	0.95	1.83	0.505	Yes				No	1.3 mg/kg
Silver	1.60 - 1.80	0 / 5			4.20	/	0.43	0.85	0.20	0.129					No	Not detected
Sodium ²		5 / 5	230	IR17-SB01-2-4-09C	NSV	/	NSV	77.0	NSV	68.3	Yes				No	Macronutrient
Thallium	2.40 - 2.80	0 / 5			1.00	/	2.80	1.28	1.28	0.38					No	Not detected
Vanadium		5 / 5	70.4	IR17-SB03-2-7-09C	7.80	3 / 5	9.03	27.1	3.48	17.2	Yes				No	See text discussion
Zinc		5 / 5	8.90	IR17-SB03-2-7-09C	46.0	0 / 5	0.19	5.64	0.12	6.59	Yes				No	Within background range

ERS Subsurface Soil Screen for Site 17 Camp Johnson Consutrcion Area

Focused PA/SI

MCB Camp Lejeune, North Carolina

			Maximum				Maximum		Mean		Maximum			Supplemental		
	Range of Non-	Frequency of	Concentration	Sample ID of Maximum	Screening	Frequency of	Hazard	Arithmetic Mean	Hazard	2 x Mean	Exceeds 2 x Mean	Supplemental	Supplemental Screening	Screening Value		
Chemical	Detect Values	Detection	Detected	Detected Concentration	Value	Exceedance ¹	Quotient	Concentration	Quotient	Background	Background?	Screening Value	Value Source	Hazard Quotient	Retain? Rationale	

NOTES

- 1 Count of detected samples exceeding or equaling Screening Value
- 2 Macronutrient Not considered to be a contaminant of potential concern (COPC)
- HQ Hazard Quotient

NSV - No Screening Value

MG/KG - Milligrams per kilogram

UG/KG - Micrograms per kilogram

Table F-9
ERS Groundwater Screen for Site 17
Camp Johnson Consutrcion Area
Focused PA/SI

Focused PA/SI MCB Camp Lejeune, North Carolina																
Chemical	Range of Non- Detect Values		Maximum Concentration Detected	Sample ID of Maximum Detected Concentration	Screening Value ¹	Frequency of Exceedance ²	Maximum Hazard Quotient	Arithmetic Mean		2 x Mean Background	Maximum Exceeds 2 x Mean Background?	Supplemental Screening Value	Supplemental Screening Value Source	Supplemental Screening Value Hazard Quotient	Retain?	Rationale
Volatile Organic Compounds (UG/L)			<u> </u>			<u> </u>		<u> </u>	<u> </u>		<u> </u>	<u> </u>	<u> </u>			
1.1.1-Trichloroethane	1.00 - 1.00	0 / 2			312	/	0.0032	0.50	0.002						No	HQ less than one, not detected
1,1,2,2-Tetrachloroethane	1.00 - 2.40	0 / 2			90.2	/	0.027	0.85	0.009						No	HQ less than one, not detected
1,1,2-Trichloro-1,2,2-trifluoroethane(Freon-113	1.00 - 1.00	0 / 2			NSV	/	NSV	0.50	NSV						No	No screening value, not detected
1,1,2-Trichloroethane	1.00 - 1.00	0 / 2			NSV	/	NSV	0.50	NSV						No	No screening value, not detected
1,1-Dichloroethane	1.00 - 1.00	0 / 2			NSV	/	NSV	0.50	NSV						No	No screening value, not detected
1,1-Dichloroethene	1.00 - 1.00	0 / 2			2,240	/	4.46E-04	0.50	2.232E-04						No	HQ less than one, not detected
1,2,4-Trichlorobenzene	1.00 - 1.00	0 / 2			4.50	/	0.22	0.50	0.11						No	HQ less than one, not detected
1,2-Dibromo-3-chloropropane	2.00 - 2.00	0 / 1			NSV	/	NSV	1.00	NSV						No	No screening value, not detected
1,2-Dibromoethane	1.00 - 1.00	0 / 2			NSV	/	NSV	0.50	NSV						No	No screening value, not detected
1,2-Dichlorobenzene	1.00 - 1.00	0 / 2			19.7	/	0.051	0.50	0.025						No	HQ less than one, not detected
1,2-Dichloroethane	1.00 - 1.00	0 / 2			1,130	/	8.85E-04	0.50	4.425E-04						No	HQ less than one, not detected
1,2-Dichloropropane 1,3-Dichlorobenzene	1.00 - 1.00 1.00 - 1.00	0 / 2			2,400 28.5	/	4.17E-04 0.035	0.50 0.50	2.083E-04 0.018						No No	HQ less than one, not detected HQ less than one, not detected
1,4-Dichlorobenzene	1.00 - 1.00	0 / 2			19.9	/	0.050	0.50	0.018						No	HQ less than one, not detected HQ less than one, not detected
2-Butanone	5.00 - 5.00	0 / 2			NSV	/	NSV	2.50	NSV						No	No screening value, not detected
2-Hexanone	5.00 - 5.00	0 / 2			NSV	/	NSV	2.50	NSV						No	No screening value, not detected
4-Methyl-2-pentanone	5.00 - 5.00	0 / 2			NSV	/	NSV	2.50	NSV						No	No screening value, not detected
Acetone	5.00 - 5.00	0 / 2			NSV	/	NSV	2.50	NSV						No	No screening value, not detected
Benzene	1.00 - 1.00	0 / 2			109	/	0.0092	0.50	0.005						No	HQ less than one, not detected
Bromodichloromethane	1.00 - 1.00	0 / 2			NSV	/	NSV	0.50	NSV						No	No screening value, not detected
Bromoform	1.00 - 1.00	0 / 2			640	/	0.0016	0.50	0.001						No	HQ less than one, not detected
Bromomethane	1.00 - 1.10	0 / 2			120	/	0.0092	0.53	0.004						No	HQ less than one, not detected
Carbon disulfide	1.00 - 1.00	0 / 2			NSV	/	NSV	0.50	NSV						No	No screening value, not detected
Carbon tetrachloride	1.00 - 1.00	0 / 2			1,500	/	6.67E-04	0.50	3.333E-04						No	HQ less than one, not detected
Chlorobenzene	1.00 - 1.00	0 / 2			105	/	0.0095	0.50	0.005						No	HQ less than one, not detected
Chloroethane	1.00 - 1.00	0 / 2			NSV	/	NSV	0.50	NSV						No	No screening value, not detected
Chloroform	1.00 - 1.00	1 / 2	4.40	IR17-TW01-09C	815	0 / 2	0.0054	2.45	0.003						No	HQ less than one, detected, common lab contaminant
Chloromethane	1.00 - 1.00	0 / 2			2,700	/	3.70E-04	0.50	1.852E-04						No	HQ less than one, not detected
cis-1,2-Dichloroethene	1.00 - 1.00	0 / 2			NSV	/	NSV	0.50	NSV						No	No screening value, not detected
cis-1,3-Dichloropropene	1.00 - 1.00	0 / 2			7.90 NSV	/	0.13 NSV	0.50 0.50	0.063						No	HQ less than one, not detected
Cyclohexane Dibromochloromethane	1.00 - 1.00 1.00 - 1.00	0 / 2			NSV	/	NSV	0.50	NSV NSV						No No	No screening value, not detected No screening value, not detected
Dichlorodifluoromethane (Freon-12)	1.00 - 1.00	0 / 2			NSV	/	NSV	0.50	NSV						No	No screening value, not detected
Ethylbenzene	1.00 - 1.00	0 / 2			4.30	/	0.23	0.50	0.12						No	HQ less than one, not detected
Isopropylbenzene	1.00 - 1.00	0 / 2			NSV	/	NSV	0.50	NSV						No	No screening value, not detected
Methyl acetate	1.00 - 1.00	0 / 2			NSV	/	NSV	0.50	NSV						No	No screening value, not detected
Methylcyclohexane	1.00 - 1.00	0 / 2			NSV	/	NSV	0.50	NSV						No	No screening value, not detected
Methylene chloride	1.00 - 1.00	0 / 2			2,560	/	3.91E-04	0.50	1.953E-04						No	HQ less than one, not detected
Methyl-tert-butyl ether (MTBE)	1.00 - 1.00	0 / 2			NSV	/	NSV	0.50	NSV						No	No screening value, not detected
Styrene	1.00 - 1.00	0 / 2			NSV	/	NSV	0.50	NSV						No	No screening value, not detected
Tetrachloroethene	1.00 - 1.10	0 / 2			45.0	/	0.024	0.53	0.012						No	HQ less than one, not detected
Toluene	1.00 - 1.00	0 / 2			37.0	/	0.027	0.50	0.014						No	HQ less than one, not detected
trans-1,2-Dichloroethene	1.00 - 1.00	0 / 2			NSV	/	NSV	0.50	NSV						No	No screening value, not detected
trans-1,3-Dichloropropene	1.00 - 1.00	0 / 2			7.90	/	0.13	0.50	0.063						No	HQ less than one, not detected
Trichloroethene	1.00 - 5.10	0 / 2			NSV	/	NSV	1.53	NSV						No	No screening value, not detected
Trichlorofluoromethane(Freon-11)	1.00 - 1.00	0 / 2			NSV	/	NSV	0.50	NSV						No	No screening value, not detected
Vinyl chloride	1.00 - 1.00	0 / 2			NSV	/	NSV	0.50	NSV						No	No screening value, not detected
Xylene, total Semivolatile Organic Compounds (UG/L)	1.00 - 1.20	0 / 2			NSV	/	NSV	0.55	NSV						No	No screening value, not detected
1,1-Biphenyl	10.0 - 10.0	0 / 2			NSV	/	NSV	5.00	NSV						No	No screening value, not detected
2,2'-Oxybis(1-chloropropane)	10.0 - 10.0	0 / 2			NSV	/	NSV	5.00	NSV						No No	No screening value, not detected No screening value, not detected
2,4,5-Trichlorophenol	10.0 - 10.0	0 / 2			NSV	/	NSV	5.00	NSV						No	No screening value, not detected No screening value, not detected
2,4-Dichlorophenol	10.0 - 10.0	0 / 2			NSV	/	NSV	5.00	NSV						No	No screening value, not detected No screening value, not detected
2,4-Dimethylphenol	10.0 - 10.0	0 / 2			NSV	/	NSV	5.00	NSV						No	No screening value, not detected No screening value, not detected
2,4-Dinitrophenol	20.0 - 20.0	0 / 2			48.5	/	0.41	10.0	0.21						No	HQ less than one, not detected
2,4-Dinitrotoluene	10.0 - 10.0	0 / 2			NSV	/	NSV	5.00	NSV						No	No screening value, not detected
			i .													

Table F-9 ERS Groundwater Screen for Site 17 Camp Johnson Consutrcion Area Focused PA/SI

MCB Camp Lejeune, I	North Carolina
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Chemical	Range of Non- Detect Values	Frequency o Detection	Maximum f Concentration Detected	Sample ID of Maximum Detected Concentration	Screening Value ¹	Frequency of Exceedance ²	Maximum Hazard Quotient	Arithmetic Mean Concentration	Mean Hazard Quotient	2 x Mean Background	Maximum Exceeds 2 x Mean Background?	Supplemental Screening Value	Supplemental Screening Value Source	Supplemental Screening Value Hazard Quotient	Retain?	Rationale
2-Chloronaphthalene	10.0 - 10.0	0 / 2			NSV	/	NSV	5.00	NSV						No	No screening value, not detected
-Chlorophenol	10.0 - 10.0	0 / 2			NSV	/	NSV	5.00	NSV						No	No screening value, not detected
	10.0 - 10.0	0 / 2			NSV	/	NSV	5.00	NSV						No	No screening value, not detected
Methylphenol	10.0 - 10.0	0 / 2			NSV	/	NSV	5.00	NSV						No	No screening value, not detected
Nitroaniline	10.0 - 10.0	0 / 2			NSV	/	NSV	5.00	NSV						No	No screening value, not detected
Nitrophenol	10.0 - 10.0	0 / 2			NSV	/	NSV	5.00	NSV						No	No screening value, not detected
,3'-Dichlorobenzidine	20.0 - 20.0	0 / 2			NSV	/	NSV	10.0	NSV						No	No screening value, not detected
Nitroaniline	10.0 - 10.0	0 / 2			NSV	/	NSV	5.00	NSV						No	No screening value, not detected
6-Dinitro-2-methylphenol	20.0 - 20.0	0 / 2			NSV	/	NSV	10.0	NSV						No	No screening value, not detected
-Bromophenyl-phenylether	10.0 - 10.0	0 / 2			NSV	/	NSV	5.00	NSV						No	No screening value, not detected
Chloro-3-methylphenol	10.0 - 10.0	0 / 2			NSV	/	NSV	5.00	NSV						No	No screening value, not detected
-Chloroaniline	10.0 - 10.0	0 / 2			NSV	/	NSV	5.00	NSV						No	No screening value, not detected
-Chlorophenyl-phenylether	10.0 - 10.0	0 / 2			NSV	/	NSV	5.00	NSV						No	No screening value, not detected
-Methylphenol	20.0 - 20.0	0 / 2			NSV	/	NSV	10.0	NSV						No	No screening value, not detected
-Nitroaniline	10.0 - 10.0	0 / 2			NSV	/	NSV	5.00	NSV						No	No screening value, not detected
-Nitrophenol	20.0 - 20.0	0 / 2			71.7	/	0.28	10.0	0.14						No	HQ less than one, not detected
cenaphthene	10.0 - 10.0	0 / 2			9.70	/	1.03	5.00	0.52						No	Not detected
cenaphthylene	10.0 - 10.0	0 / 2			NSV	/	NSV	5.00	NSV						No	No screening value, not detected
cetophenone	10.0 - 10.0	0 / 2			NSV	/	NSV	5.00	NSV						No	No screening value, not detected
nthracene	10.0 - 10.0	0 / 2			NSV	/	NSV	5.00	NSV						No	No screening value, not detected
trazine	20.0 - 20.0	0 / 2	+		NSV	/	NSV	10.0	NSV						No	No screening value, not detected
	10.0 - 10.0	0 / 2			NSV	/	NSV	5.00	NSV						No	•
enzo(a)anthracene	10.0 - 10.0	0 / 2			NSV	/	NSV	5.00	NSV						No	No screening value, not detected
enzo(a)pyrene	10.0 - 10.0	0 / 2			NSV	ļ	NSV	5.00	NSV							No screening value, not detected
enzo(b)fluoranthene					NSV	/		5.00	NSV						No No	No screening value, not detected
enzo(g,h,i)perylene	10.0 - 10.0	0 / 2					NSV									No screening value, not detected
enzo(k)fluoranthene	10.0 - 10.0	0 / 2			NSV	/	NSV	5.00	NSV						No	No screening value, not detected
is(2-Chloroethoxy)methane	10.0 - 10.0	0 / 2			NSV	/	NSV	5.00	NSV						No	No screening value, not detected
s(2-Chloroethyl)ether	10.0 - 10.0	0 / 2			NSV	/	NSV	5.00	NSV						No	No screening value, not detected
is(2-Ethylhexyl)phthalate	10.0 - 10.0	0 / 2			NSV	/	NSV	5.00	NSV						No	No screening value, not detected
utylbenzylphthalate	10.0 - 10.0	0 / 2			29.4	/	0.34	5.00	0.17						No	HQ less than one, not detected
aprolactam	10.0 - 10.0	1 / 2	4.50	IR17-TW01-09C	NSV	/	NSV	4.75	NSV						No	Uncertainy, no screening value
arbazole	10.0 - 10.0	0 / 2			NSV	/	NSV	5.00	NSV						No	No screening value, not detected
hrysene	10.0 - 10.0	0 / 2			NSV	/	NSV	5.00	NSV						No	No screening value, not detected
ibenz(a,h)anthracene	10.0 - 10.0	0 / 2			NSV	/	NSV	5.00	NSV						No	No screening value, not detected
ibenzofuran	10.0 - 10.0	0 / 2			NSV	/	NSV	5.00	NSV						No	No screening value, not detected
viethylphthalate	10.0 - 10.0	0 / 2			759	/	0.013	5.00	0.007						No	HQ less than one, not detected
imethyl phthalate	10.0 - 10.0	0 / 2			580	/	0.017	5.00	0.009						No	HQ less than one, not detected
i-n-butylphthalate	20.0 - 20.0	0 / 2			3.40	/	5.88	10.0	2.94						No	Not detected
i-n-octylphthalate	10.0 - 10.0	0 / 2			NSV	/	NSV	5.00	NSV						No	No screening value, not detected
uoranthene	10.0 - 10.0	0 / 2			1.60	/	6.25	5.00	3.13						No	Not detected
luorene	10.0 - 10.0	0 / 2			NSV	/	NSV	5.00	NSV						No	No screening value, not detected
exachlorobenzene	10.0 - 10.0	0 / 2			NSV	/	NSV	5.00	NSV						No	No screening value, not detected
exachlorobutadiene	10.0 - 10.0	0 / 2			0.32	/	31.3	5.00	16						No	Not detected
exachlorocyclopentadiene	10.0 - 10.0	0 / 2			0.070	/	143	5.00	71						No	Not detected
exachloroethane	10.0 - 10.0	0 / 2			9.40	/	1.06	5.00	0.53						No	Not detected
deno(1,2,3-cd)pyrene	10.0 - 10.0	0 / 2			NSV	/	NSV	5.00	NSV						No	No screening value, not detected
ophorone	10.0 - 10.0	0 / 2			129	/	0.078	5.00	0.039						No	HQ less than one, not detected
aphthalene	10.0 - 10.0	0 / 2			23.5	/	0.43	5.00	0.21						No	HQ less than one, not detected
Nitroso-di-n-propylamine	10.0 - 10.0	0 / 2			NSV	/	NSV	5.00	NSV						No	No screening value, not detected
Nitrosodiphenylamine	10.0 - 10.0	0 / 2			33,000	/	3.03E-04	5.00	1.515E-04						No	HQ less than one, not detected
trobenzene	10.0 - 10.0	0 / 2			30.0	/	0.33	5.00	0.17						No	HQ less than one, not detected
entachlorophenol	20.0 - 20.0	0 / 2			7.90	/	2.53	10.0	1.27						No	Not detected
nenanthrene	10.0 - 10.0	0 / 2			NSV	/	NSV	5.00	NSV						No	No screening value, not detected
nenol	10.0 - 10.0	0 / 2			58.0	/	0.17	5.00	0.086						No	HQ less than one, not detected
/rene	10.0 - 10.0	0 / 2			NSV	/	NSV	5.00	NSV						No	No screening value, not detected
esticide/Polychlorinated Biphenyls (U			1						1		1			ll.		1 2
<u> </u>	0.050 - 0.050	0 / 2			0.025	/	2.00	0.025	1						No	Not detected
1'-DDD	0,000 - 0.000															

Table F-9ERS Groundwater Screen for Site 17
Camp Johnson Consutrcion Area
Focused PA/SI

			Maximum				Maximum				Maximum		Supplemental	Supplemental		
	Range of Non-	Frequency of	Concentration	Sample ID of Maximum	Screening	Frequency of	Hazard	Arithmetic Mean	Mean Hazard	2 x Mean	Exceeds 2 x Mean	Supplemental	Screening Value	Screening Value		
Chemical	Detect Values	Detection	Detected	Detected Concentration	Value ¹	Exceedance ²	Quotient	Concentration	Quotient	Background	Background?	Screening Value	Source	Hazard Quotient	Retain?	Rationale
4,4'-DDT	0.050 - 0.050	0 / 2			0.0010	/	50.0	0.025	25						No	Not detected
Aldrin	0.050 - 0.050	0 / 2			0.13	/	0.38	0.025	0.19						No	HQ less than one, not detected
alpha-BHC	0.050 - 0.050	0 / 2			1,400	/	3.57E-05	0.025	1.786E-05						No	HQ less than one, not detected
alpha-Chlordane	0.050 - 0.050	0 / 2			0.0040	/	12.5	0.025	6.25						No	Not detected
Aroclor-1016	0.50 - 0.50	0 / 2			0.030	/	16.7	0.25	8.33						No	Not detected
Aroclor-1221	0.50 - 0.50	0 / 2			0.030	/	16.7	0.25	8.33						No	Not detected
Aroclor-1232	0.50 - 0.50	0 / 2			0.030	/	16.7	0.25	8.33						No	Not detected
Aroclor-1242	0.50 - 0.50	0 / 2			0.030	/	16.7	0.25	8.33						No	Not detected
Aroclor-1248	0.50 - 0.50	0 / 2			0.030	/	16.7	0.25	8.33						No	Not detected
Aroclor-1254	0.50 - 0.50	0 / 2	-		0.030	/	16.7	0.25	8.33						No	Not detected
Aroclor-1260	0.50 - 0.50	0 / 2	-		0.030	/	16.7	0.25	8.33						No	Not detected
beta-BHC	0.050 - 0.050	0 / 2			NSV	/	NSV	0.025	NSV						No	No screening value, not detected
delta-BHC	0.050 - 0.050	0 / 2			NSV	/	NSV	0.025	NSV						No	No screening value, not detected
Dieldrin	0.050 - 0.050	0 / 2			0.0019	/	26.3	0.025	13						No	Not detected
Endosulfan I	0.050 - 0.050	0 / 2			0.0087	/	5.75	0.025	2.87						No	Not detected
Endosulfan II	0.050 - 0.050	0 / 2	-		0.0087	/	5.75	0.025	2.87						No	Not detected
Endosulfan sulfate	0.050 - 0.050	0 / 2			NSV	/	NSV	0.025	NSV						No	No screening value, not detected
Endrin	0.050 - 0.050	0 / 2			0.0023	/	21.7	0.025	10.87						No	Not detected
Endrin aldehyde	0.050 - 0.050	0 / 2			NSV	/	NSV	0.025	NSV						No	No screening value, not detected
Endrin ketone	0.050 - 0.050	0 / 2			NSV	/	NSV	0.025	NSV						No	No screening value, not detected
gamma-BHC (Lindane)	0.050 - 0.050	0 / 2			0.016	/	3.13	0.025	1.56						No	Not detected
gamma-Chlordane	0.050 - 0.050	0 / 2			0.0040	/	12.5	0.025	6.25						No	Not detected
Heptachlor	0.050 - 0.050	0 / 2			0.0036	/	13.9	0.025	6.94						No	Not detected
Heptachlor epoxide	0.050 - 0.050	0 / 2			0.0036	/	13.9	0.025	6.94						No	Not detected
Methoxychlor	0.050 - 0.050	0 / 2			0.030	/	1.67	0.025	0.83						No	Not detected
Toxaphene	1.00 - 1.00	0 / 2			0.0020	/	500	0.50	250						No	Not detected
Inorganics (UG/L)																
Aluminum		2/2	1,680	IR17-TW01-09C	NSV	/	NSV	1,470	NSV	1886	No				No	Consistent with background
Antimony	20.0 - 20.0	0 / 2			NSV	/	NSV	10.0	NSV	3.28					No	HQ less than one, not detected
Arsenic	20.0 - 20.0	0 / 2			36.0	/	0.56	10.0	0.28	5.77					No	HQ less than one, not detected
Barium		2 / 2	474	IR17-TW01-09C	NSV	/	NSV	242	NSV	86.2	Yes	25.00	TCEQ, 2006	18.96	No	Barium in site soils is within the background range
Beryllium	2.00 - 2.00	1 / 2	0.16	IR17-TW02-09C	NSV	/	NSV	0.58	NSV	0.308	No				No	Consistent with background
Cadmium	6.00 - 6.00	0 / 2			8.80	/	0.68	3.00	0.34	0.358					No	HQ less than one, not detected
Calcium ³		2/2	111,000	IR17-TW01-09C	NSV	/	NSV	55,956	NSV	69078	Yes				No	Macronutrient
Chromium	20.0 - 20.0	1 / 2	1.80	IR17-TW01-09C	50.0	0 / 2	0.036	5.90	0.12	3.13	No				No	Consistent with background
Cobalt	5.00 - 5.00	0 / 2	-		NSV	/	NSV	2.50	NSV	3.4	Yes				No	No screening value, not detected
Copper	20.0 - 20.0	0 / 2			3.10	/	6.45	10.0	3.23	2.76					No	Not detected
Iron		2/2	2,590	IR17-TW01-09C	NSV	/	NSV	1,880	NSV	5999	No				No	Consistent with background
Lead		2 / 2	3.20	IR17-TW01-09C	8.10	0 / 2	0.40	3.20	0.40	2.8	Yes				No	Within background range
Magnesium ³		2 / 2	57,300	IR17-TW01-09C	NSV	/	NSV	28,919	NSV	6363	Yes				No	Macronutrient
Manganese		2/2	57.5	IR17-TW01-09C	NSV	/	NSV	37.6	NSV	214	No				No	Consistent with background
Mercury	0.20 - 0.20	1 / 2	0.25	IR17-TW01-09C	0.94	0 / 2	0.27	0.18	0.19	0.1	Yes				No	HQ less than one, detected
Nickel	10.0 - 10.0	1 / 2	13.8	IR17-TW01-09C	8.20	1 / 2	1.68	9.40	1.15	7.97	Yes				No	Within background range
Potassium ³		2/2	8,250	IR17-TW01-09C	NSV	/	NSV	4,660	NSV	3277	Yes				No	Macronutrient
Selenium	20.0 - 20.0	1 / 2	4.20	IR17-TW02-09C	71.0	0 / 2	0.059	7.10	0.10	3.14	Yes				No	HQ less than one, detected
Silver	20.0 - 20.0	0 / 2			0.23	/	87.0	10.0	43	0.77					No	Not detected
Sodium ³		2 / 2	499,000	IR17-TW01-09C	NSV	/	NSV	253,235	NSV	22508	Yes				No	Macronutrient
Thallium	30.0 - 30.0	0 / 2			21.3	/	1.41	15.0	0.70	3.78					No	Not detected
Vanadium	50.0 - 50.0	0 / 2			NSV	/	NSV	25.0	NSV	4.72	Yes				No	No screening value, not detected
Zinc		2/2	10.2	IR17-TW01-09C	81.0	0 / 2	0.13	7.95	0.098	42.1	No				No	Consistent with background
Dissolved Metals (UG/L)	-			•										1		
Aluminum, Dissolved	1,000 - 1,000	1 / 2	567	IR17-TW01-09C	NSV	/	NSV	534	NSV	1886	No				No	Consistent with background
Antimony, Dissolved	20.0 - 20.0	0 / 2			160	/	0.13	10.0	0.063	3.28					No	HQ less than one, not detected
Arsenic, Dissolved	20.0 - 20.0	0 / 2			36.0	/	0.56	10.0	0.28	5.77					No	HQ less than one, not detected
Barium, Dissolved		2/2	498	IR17-TW01-09C	NSV	/	NSV	252	NSV	86.2	Yes	25.00	TCEQ, 2006	19.92	No	Barium in site soils is within the background range
Beryllium, Dissolved	2.00 - 2.00	1 / 2	0.10	IR17-TW02-09C	NSV	/	NSV	0.55	NSV	0.308	No				No	Consistent with background
Cadmium, Dissolved	6.00 - 6.00	0 / 2			8.80	/	0.68	3.00	0.34	0.358					No	HQ less than one, not detected

ERS Groundwater Screen for Site 17 Camp Johnson Consutrcion Area Focused PA/SI

MCB Camp Lejeune, North Carolina

Chemical	Range of Non- Detect Values		Maximum Concentration Detected	Sample ID of Maximum Detected Concentration	Screening Value ¹	Frequency of Exceedance ²	Maximum Hazard Quotient	Arithmetic Mean Concentration	Mean Hazard Quotient	2 x Mean Background	Maximum Exceeds 2 x Mean Background?	Supplemental Screening Value	Supplemental Screening Value Source	Supplemental Screening Value Hazard Quotient	Retain?	Rationale
Calcium, Dissolved ³		2 / 2	110,000	IR17-TW01-09C	NSV	/	NSV	55,306	NSV	69078	Yes				No	Macronutrient
Chromium, Dissolved	20.0 - 20.0	0 / 2			50.0	/	0.40	10.0	0.20	3.13					No	HQ less than one, not detected
Cobalt, Dissolved	5.00 - 5.00	0 / 2			NSV	/	NSV	2.50	NSV	3.4	Yes				No	Not detected
Copper, Dissolved	20.0 - 20.0	1 / 2	3.80	IR17-TW01-09C	3.10	1 / 2	1.23	6.90	2.23	2.76	Yes				No	Within background range
Iron, Dissolved		2 / 2	2,760	IR17-TW01-09C	NSV	/	NSV	1,535	NSV	5999	No				No	Consistent with background
Lead, Dissolved	20.0 - 20.0	1 / 2	2.60	IR17-TW01-09C	8.10	0 / 2	0.32	6.30	0.78	2.8	No				No	Consistent with background
Magnesium, Dissolved ³		2 / 2	59,200	IR17-TW01-09C	NSV	/	NSV	29,733	NSV	6363	Yes				No	Macronutrient
Manganese, Dissolved		2/2	64.6	IR17-TW01-09C	NSV	/	NSV	38.8	NSV	214	No				No	Consistent with background
Mercury, Dissolved	0.20 - 0.20	0 / 2			0.94	/	0.21	0.10	0.11	0.1					No	HQ less than one, not detected
Nickel, Dissolved	10.0 - 10.0	1 / 2	15.9	IR17-TW01-09C	8.20	1 / 2	1.94	10.5	1.27	7.97	Yes				No	Within background range
Potassium, Dissolved ³		2 / 2	8,580	IR17-TW01-09C	NSV	/	NSV	4,820	NSV	3277	Yes				No	Macronutrient
Selenium, Dissolved	20.0 - 20.0	1 / 2	4.20	IR17-TW02-09C	71.0	0 / 2	0.059	7.10	0.10	3.14	Yes				No	HQ less than one, detected
Silver, Dissolved	20.0 - 20.0	0 / 2			0.23	/	87.0	10.0	43	0.77					No	Not detected
Sodium, Dissolved ³		2 / 2	510,000	IR17-TW01-09C	NSV	/	NSV	258,905	NSV	22508	Yes				No	Macronutrient
Thallium, Dissolved	30.0 - 30.0	0 / 2			21.3	/	1.41	15.0	0.70	3.78					No	Not detected
Vanadium, Dissolved	50.0 - 50.0	0 / 2			NSV	/	NSV	25.0	NSV	4.72	Yes				No	No screening value, not detected
Zinc, Dissolved		2 / 2	14.7	IR17-TW01-09C	81.0	0 / 2	0.18	11.3	0.14	42.1	No				No	Consistent with background

NOTES

- 1 Marine screening values
- 2 Count of detected samples exceeding or equaling Screening Value
- 3 Macronutrient Not considered to be a contaminant of potential concern (COPC)
- UG/L Micrograms per liter
- HQ Hazard Quotient
- NSV No Screening Value Generated by: Sara Kent
- Checked by: Kelly Taylor

Table F-10
ERS Surface Soil Screen for Site 85
Camp Johnson Consutrcion Area
Focused PA/SI
MCB Camp Leieune. North Carolina

MCB Camp Lejeune, North Carolina																
Chemical	Range of Non- Detect Values		Maximum Concentration Detected	Sample ID of Maximum Detected Concentration	Screening Value	Frequency of Exceedance ¹	Maximum Hazard Quotient	Arithmetic Mean Concentration	Mean Hazard Quotient	2 x Mean Background	Maximum Exceeds 2 x Mear Background?	Supplemental Screening Value	Supplemental Screening Value Source	Supplemental Screening Value Hazard Quotient	Retain?	Rationale
	Detect values	Detection	20100104	Dottotica Componication	Tuiuo	Executance	Luction	0011001111111011	- Cuotion	zuong. ounu		Coroning value	554.55	THE CONTRACTOR OF THE CONTRACT	Hotaiii	
Volatile Organic Compounds (UG/KG)	4.20 0.50	0 / 10	1	1	100	1 ,	0.005	2.70	0.000		1	1			Ne	HQ less than one, not detected
1,1,1-Trichloroethane	4.30 - 9.50	0 / 10			100	/	0.095	2.79	0.028						No	·
1,1,2,2-Tetrachloroethane	4.30 - 9.50	0 / 10			100	/	0.095	2.79	0.028						No	HQ less than one, not detected
1,1,2-Trichloro-1,2,2-trifluoroethane(Freon-113)	4.30 - 9.50	0 / 10			NSV	/	NSV	2.79	NSV						No	Not detected
1,1,2-Trichloroethane	4.30 - 9.50	0 / 10			100	/	0.095	2.79	0.028						No	HQ less than one, not detected
1,1-Dichloroethane	4.30 - 9.50	0 / 10			100	/	0.095	2.79	0.028						No	HQ less than one, not detected
1,1-Dichloroethene	4.30 - 9.50	0 / 10			100	/	0.095	2.79	0.028						No	HQ less than one, not detected
1,2,4-Trichlorobenzene	4.30 - 9.50	0 / 10			10.0	/	0.95	2.79	0.28	-					No	HQ less than one, not detected
1,2-Dibromo-3-chloropropane	4.30 - 9.50	0 / 10			NSV	/	NSV	2.79	NSV						No	Not detected
1,2-Dibromoethane	4.30 - 9.50	0 / 10			NSV	/	NSV	2.79	NSV						No	Not detected
1,2-Dichlorobenzene	4.30 - 9.50	0 / 10			10.0	/	0.95	2.79	0.28						No	HQ less than one, not detected
1,2-Dichloroethane	4.30 - 9.50	0 / 10			400	/	0.024	2.79	0.007						No	HQ less than one, not detected
1,2-Dichloropropane	4.30 - 9.50	0 / 10			700,000	/	1.36E-05	2.79	0.000						No	HQ less than one, not detected
1,3-Dichlorobenzene	4.30 - 9.50	0 / 10			10.0	/	0.95	2.79	0.28						No	HQ less than one, not detected
1,4-Dichlorobenzene	4.30 - 9.50	0 / 10			10.0	/	0.95	2.79	0.28						No	HQ less than one, not detected
2-Butanone	8.60 - 19.0	5 / 10	27.0	IR85-SS14-00-01-09C	NSV	/	NSV	8.55	NSV			89,600	Buchman, 2008	9.54E-05	No	Supplemental HQ less than one, common Lab contaminar
2-Hexanone	8.60 - 19.0	0 / 10			NSV	/	NSV	5.59	NSV						No	Not detected
4-Methyl-2-pentanone	8.60 - 19.0	0 / 10			NSV	/	NSV	5.59	NSV						No	Not detected
Acetone		12 / 12	1,300	IR85-SS09-00-01-09C	NSV	/	NSV	266	NSV			2500	Buchman, 2008	1.06E-01	No	Supplemental HQ less than one, common Lab contaminan
Benzene	4.30 - 9.50	0 / 10			50.0	/	0.19	2.79	0.056						No	HQ less than one, not detected
Bromodichloromethane	4.30 - 9.50	0 / 10			NSV	/	NSV	2.79	NSV						No	Not detected
Bromoform	4.30 - 9.50	0 / 10			NSV	/	NSV	2.79	NSV						No	Not detected
Bromomethane	8.60 - 19.0	0 / 10			NSV	/	NSV	5.59	NSV						No	Not detected
Carbon disulfide	4.30 - 9.50	0 / 10			NSV	/	NSV	2.79	NSV						No	Not detected
Carbon tetrachloride	4.30 - 9.50	0 / 10			1,000,000	/	9.50E-06	2.79	2.79E-06						No	HQ less than one, not detected
Chlorobenzene	4.30 - 9.50	0 / 10			50.0	/	0.19	2.79	0.056						No	HQ less than one, not detected
Chloroethane	8.60 - 19.0	0 / 10			100	/	0.19	5.59	0.056						No	HQ less than one, not detected
Chloroform	4.30 - 9.50	0 / 10			1.00	/	9.50	2.79	2.79						No	Not detected
Chloromethane	8.60 - 19.0	0 / 10			NSV	/	NSV	5.59	NSV						No	Not detected
cis-1,2-Dichloroethene	4.30 - 9.50	0 / 10			NSV	/	NSV	2.79	NSV						No	Not detected
cis-1,3-Dichloropropene	4.30 - 9.50	0 / 10			NSV	/	NSV	2.79	NSV						No	Not detected
Cyclohexane	4.30 - 9.50	0 / 10			100	/	0.095	2.79	0.028						No	HQ less than one, not detected
Dibromochloromethane	4.30 - 9.50			+	NSV	+	NSV	2.79	NSV						No	Not detected
	4.30 - 9.50	0 / 10			NSV	/	NSV	2.79	NSV							Not detected
Dichlorodifluoromethane (Freon-12)	+	0 / 10				/	1								No	HQ less than one, not detected
Ethylbenzene	4.30 - 9.50	0 / 10			50.0	/	0.19	2.79	0.056						No	Not detected
Isopropylbenzene	4.30 - 9.50	0 / 10			NSV	/	NSV	2.79	NSV						No	
Methylagelehovene	4.20 0.50	10 / 10	200	IR85-SS17-00-01-09C	NSV	/	NSV	38.3	NSV						OV)	Uncertainty, no screening value
Methylogo oblorida	4.30 - 9.50	0 / 10			NSV	/	NSV	2.79	NSV						No	Not detected HO is loss than one, detected
Methylene chloride	8.60 - 13.0	1 / 10	14.0	IR85-SS17-00-01-09C	2,000	0 / 10	0.0070	6.04	0.003						No	HQ is less than one, detected
Methyl-tert-butyl ether (MTBE)	4.30 - 9.50	0 / 10			NSV	/	NSV	2.79	NSV						No	Not detected
Styrene	4.30 - 9.50	0 / 10			100	/	0.095	2.79	0.028						No	HQ less than one, not detected
Tetrachloroethene	4.30 - 9.50	0 / 10			10.0	/	0.95	2.79	0.28						No	HQ less than one, not detected
Toluene	4.30 - 9.50	0 / 10			50.0	/	0.19	2.79	0.056						No	HQ less than one, not detected
trans-1,2-Dichloroethene	4.30 - 9.50	0 / 10			100	/	0.095	2.79	0.028						No	HQ less than one, not detected
trans-1,3-Dichloropropene	4.30 - 9.50	0 / 10			NSV	/	NSV	2.79	NSV						No	Not detected
Trichloroethene	4.30 - 9.50	0 / 10			1.00	/	9.50	2.79	2.79						No	Not detected
Trichlorofluoromethane(Freon-11)	4.30 - 9.50	0 / 10			NSV	/	NSV	2.79	NSV						No	Not detected
Vinyl chloride	8.60 - 19.0	0 / 10			10.0	/	1.90	5.59	0.56						No	Not detected
Xylene, total	4.30 - 9.50	0 / 10			50.0	/	0.19	2.79	0.056						No	HQ less than one, not detected
Semivolatile Organic Compounds (UG/KG)													-		_	
1,1-Biphenyl	180 - 230	0 / 13			60,000	/	0.0038	95.8	0.002						No	HQ less than one, not detected
2,2'-Oxybis(1-chloropropane)	180 - 230	0 / 13			NSV	/	NSV	95.8	NSV						No	Not detected
2,4,5-Trichlorophenol	180 - 230	0 / 13			4,000	/	0.058	95.8	0.024						No	HQ less than one, not detected
2,4-Dichlorophenol	180 - 230	0 / 13			3.00	/	76.7	95.8	32						No	Not detected
2,4-Dimethylphenol	180 - 230	0 / 13			NSV	/	NSV	95.8	NSV	-					No	Not detected
2,4-Dinitrophenol	180 - 230	0 / 13			20,000	/	0.012	95.8	0.005						No	HQ less than one, not detected
· · · · · · · · · · · · · · · · · · ·		•	•			•	•									•

Table F-10
ERS Surface Soil Screen for Site 85
Camp Johnson Consutrcion Area
Focused PA/SI

MCB Camp Lejeune, North Carolina																
Chaminal	Range of Non-	Frequency of	Maximum Concentration	Sample ID of Maximum	Screening	Frequency of	Maximum Hazard	Arithmetic Mean	Mean Hazard	2 x Mean	Maximum Exceeds 2 x Mean	Supplemental	Supplemental Screening Value	Supplemental Screening Value	Datain 2	Dational
Chemical	Detect Values	Detection	Detected	Detected Concentration	Value	Exceedance ¹	Quotient	Concentration	Quotient	Background	Background?	Screening Value	Source	Hazard Quotient	Retain?	Rationale
2,4-Dinitrotoluene	180 - 230	0 / 13			NSV	/	NSV	95.8	NSV						No	Not detected
2,6-Dinitrotoluene	180 - 230	0 / 13			NSV	/	NSV	95.8	NSV						No	Not detected
2-Chloronaphthalene	180 - 230	0 / 13			1,000	/	0.23	95.8	0.096						No	HQ less than one, not detected
2-Chlorophenol	180 - 230	0 / 13			10.0	/	23.0	95.8	9.58						No	Not detected
2-Methylnaphthalene	180 - 230	0 / 13			29,000	/	0.0079	95.8	0.003						No	HQ less than one, not detected
2-Methylphenol	180 - 230	0 / 13			500	/	0.46	95.8	0.19						No	HQ less than one, not detected
2-Nitroaniline	180 - 230	0 / 13			NSV	/	NSV	95.8	NSV						No	Not detected
2-Nitrophenol	180 - 230	0 / 13			NSV	/	NSV	95.8	NSV						No	Not detected
3,3'-Dichlorobenzidine	180 - 230	0 / 13			NSV	/	NSV	95.8	NSV						No	Not detected
3-Nitroaniline	180 - 230	0 / 13			NSV	/	NSV	95.8	NSV						No	Not detected
4,6-Dinitro-2-methylphenol	180 - 230	0 / 13			NSV	/	NSV	95.8	NSV						No	Not detected
4-Bromophenyl-phenylether	180 - 230	0 / 13			NSV	/	NSV	95.8	NSV						No	Not detected
4-Chloro-3-methylphenol	180 - 230	0 / 13			NSV	/	NSV	95.8	NSV						No	Not detected
4-Chloroaniline	180 - 230	0 / 13			20,000	/	0.012	95.8	0.005						No	HQ less than one, not detected
4-Chlorophenyl-phenylether	180 - 230	0 / 13			NSV	/	NSV	95.8	NSV						No	Not detected
4-Methylphenol	180 - 230	0 / 13			500	/	0.46	95.8	0.19						No	HQ less than one, not detected
4-Nitroaniline	180 - 230	0 / 13			NSV	/	NSV	95.8	NSV						No	Not detected
4-Nitrophenol	180 - 230	0 / 13			7,000	/	0.033	95.8	0.014						No	HQ less than one, not detected
Acenaphthene	180 - 230	0 / 13			29,000	/	0.0079	95.8	0.003						No	HQ less than one, not detected
Acenaphthylene	180 - 230	0 / 13			29,000	/	0.0079	95.8	0.003						No	HQ less than one, not detected
Acetophenone	180 - 230	0 / 13			NSV	/	NSV	95.8	NSV						No	Not detected
Anthracene	180 - 230	0 / 13			29,000	/	0.0079	95.8	0.003						No	HQ less than one, not detected
Atrazine	180 - 230	0 / 13			0.050	/	4,600	95.8	1915						No	Not detected
Benzaldehyde	180 - 230	0 / 13			NSV	/	NSV	95.8	NSV						No	Not detected
Benzo(a)anthracene	36.0 - 47.0	0 / 13			1,100	/	0.043	19.2	0.017						No	HQ less than one, not detected
Benzo(a)pyrene	36.0 - 47.0	0 / 13			1,100	/	0.043	19.2	0.017						No	HQ less than one, not detected
Benzo(b)fluoranthene	36.0 - 47.0	0 / 13			1,100	/	0.043	19.2	0.017						No	HQ less than one, not detected
Benzo(g,h,i)perylene	180 - 230	0 / 13			1,100	/	0.21	95.8	0.087						No	HQ less than one, not detected
Benzo(k)fluoranthene	180 - 230	0 / 13			1,100	/	0.21	95.8	0.087						No	HQ less than one, not detected
bis(2-Chloroethoxy)methane	180 - 230	0 / 13			NSV	/	NSV	95.8	NSV						No	Not detected
bis(2-Chloroethyl)ether	180 - 230	0 / 13			NSV	/	NSV	95.8	NSV						No	Not detected
																Low frequency and magnitude of exceedance, common lab
bis(2-Ethylhexyl)phthalate	180 - 230	3 / 13	140	IR85-SS06-00-01-09C	100	1 / 13	1.40	91.7	0.92						No	contaminant
Butylbenzylphthalate	180 - 230	0 / 13			100	/	2.30	95.8	0.96						No	Not detected
Caprolactam	180 - 230	0 / 13			NSV	/	NSV	95.8	NSV						No	Not detected
Carbazole	180 - 230	0 / 13			NSV	/	NSV	95.8	NSV						No	Not detected
Chrysene	180 - 230	0 / 13			1,100	/	0.21	95.8	0.087						No	HQ less than one, not detected
Dibenz(a,h)anthracene	36.0 - 47.0	0 / 13			1,100	/	0.043	19.2	0.017						No	HQ less than one, not detected
Dibenzofuran	180 - 230	0 / 13			NSV	/	NSV	95.8	NSV						No	Not detected
Diethylphthalate	180 - 230	0 / 13			100,000	/	0.0023	95.8	0.001						No	HQ less than one, not detected
Dimethyl phthalate	180 - 230	0 / 13			200,000	/	0.0012	95.8	4.79E-04						No	HQ less than one, not detected
Di-n-butylphthalate	180 - 230	0 / 13			200,000	/	0.0012	95.8	4.79E-04						No	HQ less than one, not detected
Di-n-octylphthalate	180 - 230	0 / 13			100	/	2.30	95.8	0.96						No	Not detected
Fluoranthene	180 - 230	0 / 13			1,100	/	0.21	95.8	0.087						No	HQ less than one, not detected
Fluorene	180 - 230	0 / 13			29,000	/	0.0079	95.8	0.003						No	HQ less than one, not detected
Hexachlorobenzene	180 - 230	0 / 13			2.50	/	92.0	95.8	38						No	Not detected
Hexachlorobutadiene	180 - 230	0 / 13			NSV	/	NSV	95.8	NSV						No	Not detected
Hexachlorocyclopentadiene	180 - 230	0 / 12			10,000	/	0.023	94.6	0.009						No	HQ less than one, not detected
Hexachloroethane	180 - 230	0 / 13			100	/	2.30	95.8	0.96						No	Not detected
Indeno(1,2,3-cd)pyrene	36.0 - 47.0	0 / 13			1,100	/	0.043	19.2	0.017						No	HQ less than one, not detected
Isophorone	36.0 - 47.0	0 / 13			NSV	/	NSV	19.2	NSV						No	Not detected
Naphthalene	180 - 230	0 / 13			29,000	/	0.0079	95.8	0.003						No	HQ less than one, not detected
n-Nitroso-di-n-propylamine	36.0 - 47.0	0 / 13			NSV	/	NSV	19.2	NSV						No	Not detected
n-Nitrosodiphenylamine	180 - 230	0 / 13			20,000	/	0.012	95.8	0.005						No	HQ less than one, not detected
Nitrobenzene	180 - 230	0 / 13			40,000	/	0.0058	95.8	0.002						No	HQ less than one, not detected
Pentachlorophenol	180 - 230	0 / 13			2,100	/	0.0030	95.8	0.002						No	HQ less than one, not detected
Phenanthrene	180 - 230	0 / 13			29,000	/	0.0079	95.8	0.040						No	HQ less than one, not detected
Phenol	180 - 230	0 / 13			50.0	/	4.60	95.8	1.92						No	Not detected
LINCHUL	100 - 230	0 / 13		<u> </u>	50.0	/	4.00	7J.U	1.7∠		1				INU	

Table F-10ERS Surface Soil Screen for Site 85
Camp Johnson Consutrcion Area
Focused PA/SI

MCB Camp Lejeune, North Carolina																
Chemical	Range of Non- Detect Values		Maximum Concentration Detected	Sample ID of Maximum Detected Concentration	Screening Value	Frequency of Exceedance ¹	Maximum Hazard Quotient	Arithmetic Mean Concentration	Mean Hazard Quotient	2 x Mean Background	Maximum Exceeds 2 x Mean Background?	Supplemental Screening Value	Supplemental Screening Value Source	Supplemental Screening Value Hazard Quotient	Retain?	Rationale
Pyrene	180 - 230	0 / 13			1,100	/	0.21	95.8	0.087						No	HQ less than one, not detected
Pesticide/Polychlorinated Biphenyls (UG/K	(G)	•	•	•				•			•	•				
4,4'-DDD	1.80 - 2.30	5 / 13	3.10	IR85-SS18-00-01-09C	21.0	0 / 13	0.15	1.11	0.053						No	HQ is less than one, detected
4,4'-DDE	1.90 - 1.90	12 / 13	29.0	IR85-SS18-00-01-09C	21.0	1 / 13	1.38	4.35	0.21						No	Low frequency and magnitude of exceedance, mean HQ less than one
																Low frequency and magnitude of exceedance, mean HQ
4,4'-DDT	1.80 - 1.90	11 / 13	25.0	IR85-SS18-00-01-09C	21.0	1 / 13	1.19	3.76	0.18						No	less than one
Aldrin	1.80 - 2.30	0 / 13			2.50	/	0.92	0.96	0.38						No	HQ less than one, not detected
alpha-BHC	1.80 - 2.30	0 / 13			2.50	/	0.92	0.96	0.38						No	HQ less than one, not detected
alpha-Chlordane	1.80 - 2.30	0 / 13			100	/	0.023	0.96	0.010					==	No	HQ less than one, not detected
Aroclor-1016	17.0 - 23.0	0 / 13			20.0	/	1.15	9.31	0.47					==	No	Not detected
Aroclor-1221	17.0 - 23.0	0 / 13			20.0	/	1.15	9.31	0.47	-					No	Not detected
Aroclor-1232	17.0 - 23.0	0 / 13			20.0	/	1.15	9.31	0.47						No	Not detected
Aroclor-1242	17.0 - 23.0	0 / 13			20.0	/	1.15	9.31	0.47						No	Not detected
Aroclor-1248	17.0 - 23.0	0 / 13			20.0	/	1.15	9.31	0.47						No	Not detected
Aroclor-1254	17.0 - 22.0	2 / 13	50.0	IR85-SS17-00-01-09C	20.0	2 / 13	2.50	14.6	0.73						No	Low magnitude of exceedance, mean HQ less than one
Aroclor-1260	17.0 - 23.0	0 / 13			20.0	/	1.15	9.31	0.47						No	Not detected
beta-BHC	1.80 - 2.30	0 / 13			1.00	/	2.30	0.96	0.96						No	Not detected
delta-BHC	1.80 - 2.30	0 / 13			100	/	0.023	0.96	0.010						No	HQ less than one, not detected
Dieldrin	1.80 - 2.20	1 / 13	1.90	IR85-SS17-00-01-09C	4.90	0 / 13	0.39	1.02	0.21						No	HQ is less than one, detected
Endosulfan I	1.80 - 2.30	0 / 13			100	/	0.023	0.96	0.010						No	HQ less than one, not detected
Endosulfan II	1.80 - 2.30	0 / 13			100	/	0.023	0.96	0.010						No	HQ less than one, not detected
Endosulfan sulfate	1.80 - 2.30	0 / 13			100	/	0.023	0.96	0.010						No	HQ less than one, not detected
Endrin	1.80 - 2.30	0 / 13			1.00	/	2.30	0.96	0.96						No	Not detected
Endrin aldehyde	1.80 - 2.30	0 / 13			100	/	0.023	0.96	0.010						No	HQ less than one, not detected
Endrin ketone	1.80 - 2.30	0 / 13			100	/	0.023	0.96	0.010						No	HQ less than one, not detected
gamma-BHC (Lindane)	1.80 - 2.30	0 / 13			0.050	/	46.0	0.96	19						No	Not detected
gamma-Chlordane	1.80 - 1.90	2 / 13	2.70	IR85-SS18-00-01-09C	100	0 / 13	0.027	1.06	0.011						No	HQ is less than one, detected
Heptachlor	1.80 - 2.30	0 / 13			100	/	0.023	0.96	0.010						No	HQ less than one, not detected
Heptachlor epoxide	1.80 - 2.30	0 / 13			100	/	0.023	0.96	0.010						No	HQ less than one, not detected
Methoxychlor	1.80 - 2.30	0 / 13			100	/	0.023	0.96	0.010						No	HQ less than one, not detected
Toxaphene	36.0 - 47.0	0 / 13			100	/	0.47	19.2	0.19						No	HQ less than one, not detected
Inorganics (MG/KG)			l					l			l	l				
Aluminum		13 / 13	7,300	IR85-SS14-00-01-09C	50.0	13 / 13	146	4,508	90	5,487	Yes				No	Within background range
								,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,								HQ above 1, maximum concentration well above
Antimony	1.50 - 38.5	1 / 13	5.90	IR85-SS18-00-01-09C	0.27	1 / 13	21.9	2.61	9.66	0.447	Yes				Yes	background range, and magnitude of exceedance is high
Arsenic		13 / 13	9.90	IR85-SS17-00-01-09C	18.0	0 / 13	0.55	1.83	0.102	0.626	Yes				No	HQ is less than one, detected
Barium	24.0 - 24.0	12 / 13	31.0	IR85-SS17-00-01-09C	330	0 / 13	0.094	12.6	0.038	14.5	Yes				No	HQ is less than one, detected
Beryllium	0.16 - 3.90	9 / 13	0.096	IR85-SS18-00-01-09C	21.0	0 / 13	0.0046	0.20	0.010	0.10	No				No	Consistent with background
																HQ above 1, maximum concentration well above
Cadmium	0.45 - 0.49	3 / 13	3.50	IR85-SS18-00-01-09C	0.36	3 / 13	9.72	0.72	2.00	0.033	Yes				Yes	background range, and magnitude of exceedance is high
Calcium ²	76.4 - 1,930		468	IR85-SS16-00-01-09C	NSV	/	NSV	237	NSV	6,360	No				No	Macronutrient
Chromium	38.5 - 38.5	12 / 13	8.50	IR85-SS18-00-01-09C	26.0	0 / 13	0.33	5.23	0.20	6.05	Yes				No	Within background range
Cobalt	0.39 - 0.41	11 / 13	2.40	IR85-SS17-00-01-09C	13.0	0 / 13	0.18	0.39	0.030	0.29	Yes				No	HQ is less than one, detected
Copper		13 / 13	214	IR85-SS18-00-01-09C	28.0	2 / 13	7.64	27.6	0.99	4.83	Yes				Yes	HQ above 1, maximum concentration well above background range, and magnitude of exceedance is high
Iron		13 / 13	11,500	IR85-SS18-00-01-09C	200	13 / 13	57.5	3,332	17	3,245	Yes				No	Within background range
Lead		13 / 13	614	IR85-SS18-00-01-09C	11.0	6 / 13	55.8	72.3	6.57	12.3	Yes	50.0	Region 4 (EPA, 2001)	12.3	Yes	HQ above 1, maximum concentration well above background range, and magnitude of exceedance is high
Magnesium ²		13 / 13	178	IR85-SS14-00-01-09C	NSV	/	NSV	133	NSV	238	No			==	No	Consistent with background
Manganese		13 / 13	10,700	IR85-SS17-00-01-09C	220	4 / 13	48.6	975	4.43	13.7	Yes				Yes	HQ above 1, maximum concentration well above background range, and magnitude of exceedance is high

ERS Surface Soil Screen for Site 85 Camp Johnson Consutrcion Area Focused PA/SI

MCB Camp Lejeune, North Carolina

Chemical	Range of Non- Detect Values		Maximum Concentration Detected	Sample ID of Maximum Detected Concentration	Screening Value	Frequency of Exceedance ¹	Maximum Hazard Quotient	Arithmetic Mean Concentration	Mean Hazard Quotient	2 x Mean Background	Maximum Exceeds 2 x Mear Background?	Supplemental Screening Value	Supplemental Screening Value Source	Supplemental Screening Value Hazard Quotient	Retain? Rationale
															HQ above 1, maximum concentration well above
Mercury	0.033 - 0.034	11 / 13	8.80	IR85-SS18-00-01-09C	0.10	5 / 13	88.0	1.21	12	0.081	Yes				Yes background range, and magnitude of exceedance is high
Nickel		13 / 13	8.70	IR85-SS17-00-01-09C	38.0	0 / 13	0.23	2.11	0.06	1.21	Yes				No HQ is less than one, detected
Potassium ²	79.3 - 1,930	9 / 13	136	IR85-SS06-00-01-09C	NSV	/	NSV	157	NSV	116	Yes				No Within background range
Selenium	1.50 - 38.5	1 / 13	0.45	IR85-SS14-00-01-09C	0.52	0 / 13	0.87	2.50	4.80	0.56	No				No Consistent with background
Silver	1.50 - 38.5	5 / 13	0.29	IR85-SS16-00-01-09C	4.20	0 / 13	0.069	2.28	0.54	0.14	Yes				No HQ is less than one, detected
Sodium ²	198 - 4,820	7 / 13	7.50	IR85-SS09-00-01-09C	NSV	/	NSV	265	NSV	80.9	No				No Consistent with background
Thallium	2.30 - 14.4	2 / 13	18.7	IR85-SS17-00-01-09C	1.00	1 / 13	18.7	2.95	2.95	0.36	Yes				HQ above 1, maximum concentration well above background range, and magnitude of exceedance is high
Vanadium	96.3 - 96.3	12 / 13	10.0	IR85-SS14-00-01-09C	7.80	3 / 13	1.28	10.2	1.31	8.90	Yes				No Within background range
Zinc	3.90 - 4.10	11 / 13	5,600	IR85-SS17-00-01-09C	46.0	5 / 13	122	711	15	10.8	Yes				HQ above 1, maximum concentration well above background range, and magnitude of exceedance is high

NOTES

- 1 Count of detected samples exceeding or equaling Screening Value
- 2 Macronutrient Not considered to be a contaminant of potential concern (COPC)

HQ - Hazard Quotient

MG/KG - Milligrams per kilogram

NSV - No Screening Value

UG/KG - Micrograms per kilogram

Generated by: Sara Kent

Checked by: Kelly Taylor

Table F-11
ERS Subsurface Soil Screen for Site 85
Camp Johnson Consutrcion Area
Focused PA/SI

Chemical	Range of Non- Detect Values	Frequency of Detection	Maximum Concentration Detected	Sample ID of Maximum Detected Concentration	Screening Value	Frequency of Exceedance ¹	Maximum Hazard Quotient	Arithmetic Mean Concentration	Mean Hazard Quotient	2 x Mean Background	Maximum Exceeds 2 x Mean Background?	Supplemental Screening Value	Supplemental Screening Value Source	Supplemental Screening Value Hazard Quotient	Retain?	Rationale
Volatile Organic Compounds (UG/KG)																
1,1,1-Trichloroethane	1.60 - 2.10	0 / 9			100	/	0.021	0.88	0.009						No	HQ less than one, not detected
1,1,2,2-Tetrachloroethane	1.60 - 2.10	0 / 9			100	/	0.021	0.88	0.009						No	HQ less than one, not detected
1,1,2-Trichloro-1,2,2-trifluoroethane(Freon-113		0 / 9			NSV	/	NSV	0.88	NSV						No	No screening value, not detected
1,1,2-Trichloroethane	1.60 - 2.10	0 / 9			100	/	0.021	0.88	0.009						No	HQ less than one, not detected
1,1-Dichloroethane	1.60 - 2.10	0 / 9			100	/	0.021	0.88	0.009						No	HQ less than one, not detected
1,1-Dichloroethene	1.60 - 2.10	0 / 9			100	/	0.021	0.88	0.009						No	HQ less than one, not detected
1,2,4-Trichlorobenzene	1.60 - 1.90	5 / 9	2.70	IR85-SB11-2-7-09C	10.0	0 / 9	0.27	1.66	0.17						No	HQ less than one, detected
1,2-Dibromo-3-chloropropane	1.60 - 2.10	1 / 9	2.40	IR85-SB11-2-7-09C	NSV	/	NSV	1.04	NSV			35.2	Buchman, 2008	0.068	No	Supplemental HQ less than one
1,2-Dibromoethane	1.60 - 2.10	0 / 9			NSV	/	NSV	0.88	NSV						No	No screening value, not detected
1,2-Dichlorobenzene	1.60 - 2.10	0 / 9			10.0	/	0.21	0.88	0.088						No	HQ less than one, not detected
1,2-Dichloroethane	1.60 - 2.10	0 / 9			400	/	0.0053	0.88	0.002						No	HQ less than one, not detected
1,2-Dichloropropane	1.60 - 2.10	0 / 9			700,000	/	3.00E-06	0.88	1.262E-06						No	HQ less than one, not detected
1,3-Dichlorobenzene	1.60 - 1.90	3 / 9	1.40	IR85-SB08-2-7-09C	10.0	0 / 9	0.14	1.02	0.102						No	HQ less than one, detected
1,4-Dichlorobenzene	1.60 - 2.10	0 / 9			10.0	/	0.21	0.88	0.088						No	HQ less than one, not detected
2-Butanone	3.50 - 3.80	8 / 10	4.10	IR85-SB13-2-7-09C	NSV	/	NSV	2.44	NSV			89,600	Buchman, 2008	9.03E-06	No	Supplemental HQ less than one, common lab contaminant
2-Hexanone	3.10 - 4.10	0 / 9			NSV	/	NSV	1.77	NSV						No	No screening value, not detected
4-Methyl-2-pentanone	3.10 - 4.10	1 / 9	1.50	IR85-SB11-2-7-09C	NSV	/	NSV	1.72	NSV			443,000	Buchman, 2008	0.000	No	Supplemental HQ less than one
Acetone	3.50 - 3.80	8 / 10	100	IR85-SB13-2-7-09C	NSV	/	NSV	51.6	NSV			2500	Buchman, 2008	1.41E-02	No	Supplemental HQ less than one
Benzene	1.60 - 2.10	0 / 9			50.0	/	0.042	0.88	0.018						No	HQ less than one, not detected
Bromodichloromethane	1.60 - 2.10	0 / 9			NSV	/	NSV	0.88	NSV						No	No screening value, not detected
Bromoform	1.60 - 2.10	0 / 9			NSV	/	NSV	0.88	NSV						No	No screening value, not detected
Bromomethane	3.50 - 3.80	0 / 2			NSV	/	NSV	1.83	NSV						No	No screening value, not detected
Carbon disulfide	1.60 - 2.10	0 / 9			NSV	/	NSV	0.88	NSV						No	No screening value, not detected
Carbon tetrachloride	1.60 - 2.10	0 / 9			1,000,000	/	2.10E-06	0.88	8.833E-07						No	HQ less than one, not detected
Chlorobenzene	1.60 - 2.10	0 / 9			50.0	/	0.042	0.88	0.018						No	HQ less than one, not detected
Chloroethane	3.10 - 4.10	0 / 8			100	/	0.041	1.78	0.018						No	HQ less than one, not detected
																Low magnitude of exceedance, mean HQ
Chloroform	1.60 - 2.10	1 / 9	1.00	IR85-SB11-2-7-09C	1.00	1 / 9	1.00	0.89	0.89						No	less than one, common lab contaminant.
Chloromethane	3.10 - 4.10	0 / 9			NSV	/	NSV	1.77	NSV						No	No screening value, not detected
cis-1,2-Dichloroethene	1.60 - 2.10	0 / 9			NSV	/	NSV	0.88	NSV						No	No screening value, not detected
cis-1,3-Dichloropropene	1.60 - 2.10	0 / 9			NSV	/	NSV	0.88	NSV						No	No screening value, not detected
Cyclohexane	1.60 - 2.10	0 / 9			100	/	0.021	0.88	0.009						No	HQ less than one, not detected
Dibromochloromethane	1.60 - 2.10	0 / 9			NSV	/	NSV	0.88	NSV						No	No screening value, not detected
Dichlorodifluoromethane (Freon-12)	1.60 - 2.10	0 / 9			NSV	/	NSV	0.88	NSV						No	No screening value, not detected
Ethylbenzene	1.60 - 2.10	0 / 9			50.0	/	0.042	0.88	0.018						No	HQ less than one, not detected
Isopropylbenzene	1.70 - 1.90	5 / 9	2.70	IR85-SB08-2-7-09C	NSV	/	NSV	1.68	NSV						No	Uncertainty, no screening value
Methyl acetate	1.60 - 1.90	6 / 10	20.0	IR85-SB07-2-4-09C	NSV	/	NSV	3.91	NSV						No	Uncertainty, no screening value
Methylcyclohexane	1.60 - 2.10	0 / 9			NSV	/	NSV	0.88	NSV						No	No screening value, not detected
Methylene chloride	3.10 - 3.30	8 / 10	2.30	IR85-SB08-2-7-09C	2,000	0 / 10	0.0012	1.51	0.001						No	HQ less than one, detected
Methyl-tert-butyl ether (MTBE)	1.60 - 2.10	0 / 9			NSV	/	NSV	0.88	NSV						No	No screening value, not detected
Styrene	1.70 - 3.30	6 / 9	2.80	IR85-SB08-2-7-09C	100	0 / 9	0.028	2.01	0.020						No	HQ less than one, detected
Tetrachloroethene	1.60 - 1.90	4 / 9	1.60	IR85-SB08-2-7-09C	10.0	0 / 9	0.16	1.13	0.11						No	HQ less than one, detected
Toluene	1.60 - 2.10	1 / 9	0.64	IR85-SB17-6-7-09C	50.0	0 / 9	0.013	0.85	0.017						No	HQ less than one, detected
trans-1,2-Dichloroethene	1.60 - 2.10	0 / 9			100	/	0.021	0.88	0.009						No	HQ less than one, not detected
trans-1,3-Dichloropropene	1.60 - 2.10	0 / 9			NSV	/	NSV	0.88	NSV						No	No screening value, not detected
Trichloroethene	1.60 - 2.10	0 / 9			1.00	/	2.10	0.88	0.883						No	Not detected
Trichlorofluoromethane(Freon-11)	1.60 - 2.10	0 / 9			NSV	/	NSV	0.88	NSV						No	No screening value, not detected
Vinyl chloride	3.30 - 3.80	0 / 3			10.0	/	0.38	1.77	0.18						No	HQ less than one, not detected
Xylene, total	1.60 - 3.30	0 / 9			50.0	/	0.066	0.97	0.019						No	HQ less than one, not detected
Semivolatile Organic Compounds (UG/KG)		1			1	· ·	1 2:230		1	I.		1	1	1		
Schlivolatile Organic Combounds totaktar																

Table F-11
ERS Subsurface Soil Screen for Site 85
Camp Johnson Consutrcion Area
Focused PA/SI

Chemical	Range of Non- Detect Values	Frequency of Detection	Maximum Concentration Detected	Sample ID of Maximum Detected Concentration	Screening Value	Frequency of Exceedance ¹	Maximum Hazard Quotient	Arithmetic Mean Concentration	Mean Hazard Quotient	2 x Mean Background	Maximum Exceeds 2 x Mean Background?	Supplemental Screening Value	Supplemental Screening Value Source	Supplemental Screening Value Hazard Quotient	Retain?	Rationale
2,2'-Oxybis(1-chloropropane)	180 - 200	0 / 10			NSV	/	NSV	94.5	NSV						No	No screening value, not detected
2,4,5-Trichlorophenol	180 - 200	0 / 10			4,000	/	0.050	94.5	0.024						No	HQ less than one, not detected
2,4-Dichlorophenol	180 - 200	0 / 10			3.00	/	66.7	94.5	32						No	Not detected
2,4-Dimethylphenol	180 - 200	0 / 10			NSV	/	NSV	94.5	NSV						No	No screening value, not detected
2,4-Dinitrophenol	180 - 200	0 / 10			20,000	/	0.010	94.5	0.005						No	HQ less than one, not detected
2,4-Dinitrotoluene	180 - 200	0 / 10			NSV	/	NSV	94.5	NSV						No	No screening value, not detected
,6-Dinitrotoluene	180 - 200	0 / 10			NSV	/	NSV	94.5	NSV						No	No screening value, not detected
Chloronaphthalene	180 - 200	0 / 10			1,000	/	0.20	94.5	0.095						No	HQ less than one, not detected
-Chlorophenol	180 - 200	0 / 10			10.0	/	20.0	94.5	9.45						No	Not detected
-Methylnaphthalene	180 - 200	0 / 10			29,000	/	0.0069	94.5	0.003						No	HQ less than one, not detected
-Methylphenol	180 - 200	0 / 10			500	/	0.40	94.5	0.19						No	HQ less than one, not detected
Nitroaniline	180 - 200	0 / 10			NSV	/	NSV	94.5	NSV						No	No screening value, not detected
-Nitrophenol	180 - 200	0 / 10			NSV	/	NSV	94.5	NSV						No	No screening value, not detected
,3'-Dichlorobenzidine	180 - 200	0 / 10			NSV	/	NSV	94.5	NSV						No	No screening value, not detected
-Nitroaniline	180 - 200	0 / 10			NSV	/	NSV	94.5	NSV						No	No screening value, not detected
,6-Dinitro-2-methylphenol	180 - 200	0 / 10			NSV	/	NSV	94.5	NSV						No	No screening value, not detected
-Bromophenyl-phenylether	180 - 200	0 / 10			NSV	/	NSV	94.5	NSV						No	No screening value, not detected
-Chloro-3-methylphenol	180 - 200	0 / 10			NSV	/	NSV	94.5	NSV						No	No screening value, not detected
-Chloroaniline	180 - 200	0 / 10			20,000	/	0.010	94.5	0.005						No	HQ less than one, not detected
-Chlorophenyl-phenylether	180 - 200	0 / 10			NSV	/	NSV	94.5	NSV						No	No screening value, not detected
-Methylphenol	180 - 200	0 / 10			500	/	0.40	94.5	0.19						No	HQ less than one, not detected
Nitroaniline	180 - 200	0 / 10			NSV	/	NSV	94.5	NSV						No	No screening value, not detected
Nitrophenol	180 - 200	0 / 10			7,000	/	0.029	94.5	0.014						No	HQ less than one, not detected
cenaphthene	180 - 200	0 / 10			29,000	/	0.0069	94.5	0.003						No	HQ less than one, not detected
cenaphthylene	180 - 200	0 / 10			29,000	/	0.0069	94.5	0.003						No	HQ less than one, not detected
	180 - 200	0 / 10			NSV	/	NSV	94.5	NSV						No	No screening value, not detected
nthracene	180 - 200	0 / 10			29,000	/	0.0069	94.5	0.003						No	HQ less than one, not detected
trazine	180 - 200	0 / 10			0.050	/	4,000	94.5	1890						No	Not detected
Benzo(a)anthracene	36.0 - 39.0	0 / 10			1,100	/	0.035	18.7	0.017						No	HQ less than one, not detected
	36.0 - 39.0	0 / 10			1,100	/	0.035	18.7	0.017						No	HQ less than one, not detected
Senzo(a)pyrene	36.0 - 39.0 36.0 - 39.0	0 / 10			1,100		0.035	18.7	0.017							HQ less than one, not detected
enzo(b)fluoranthene						/									No	HQ less than one, not detected
Benzo(g,h,i)perylene	180 - 200	0 / 10			1,100	/	0.18	94.5	0.086						No	
Senzo(k)fluoranthene	180 - 200	0 / 10			1,100	/	0.18	94.5	0.086						No	HQ less than one, not detected
is(2-Chloroethoxy)methane	180 - 200	0 / 10			NSV	/	NSV	94.5	NSV						No	No screening value, not detected
is(2-Chloroethyl)ether	180 - 200	0 / 10			NSV	/	NSV	94.5	NSV						No	No screening value, not detected
is(2-Ethylhexyl)phthalate	180 - 200	1 / 10	58.0	IR85-SB14-2-7-09C	100	0 / 10	0.58	90.8	0.91						No	HQ less than one, detected
utylbenzylphthalate	180 - 200	0 / 10			100	/	2.00	94.5	0.95						No	Not detected
aprolactam	180 - 200	0 / 10			NSV	/	NSV	94.5	NSV						No	No screening value, not detected
arbazole	180 - 200	0 / 10			NSV	/	NSV	94.5	NSV						No	No screening value, not detected
hrysene	180 - 200	0 / 10			1,100	/	0.18	94.5	0.086						No	HQ less than one, not detected
ibenz(a,h)anthracene	36.0 - 39.0	0 / 10			1,100	/	0.035	18.7	0.017						No	HQ less than one, not detected
ibenzofuran	180 - 200	0 / 10			NSV	/	NSV	94.5	NSV						No	No screening value, not detected
piethylphthalate	180 - 200	0 / 10			100,000	/	0.0020	94.5	0.001						No	HQ less than one, not detected
imethyl phthalate	180 - 200	0 / 10			200,000	/	0.0010	94.5	4.725E-04						No	HQ less than one, not detected
i-n-butylphthalate	180 - 200	0 / 10			200,000	/	0.0010	94.5	4.725E-04						No	HQ less than one, not detected
i-n-octylphthalate	180 - 200	0 / 10			100	/	2.00	94.5	0.95						No	Not detected
luoranthene	180 - 200	0 / 10			1,100	/	0.18	94.5	0.086						No	HQ less than one, not detected
luorene	180 - 200	0 / 10			29,000	/	0.0069	94.5	0.003						No	HQ less than one, not detected
lexachlorobenzene	180 - 200	0 / 10			2.50	/	80.0	94.5	38						No	Not detected
exachlorobutadiene	180 - 200	0 / 10			NSV	/	NSV	94.5	NSV						No	No screening value, not detected
exachlorocyclopentadiene	180 - 200	0 / 10			10,000	/	0.020	94.5	0.009						No	HQ less than one, not detected
lexachloroethane	180 - 200	0 / 10			100	/	2.00	94.5	0.95						No	Not detected
ndeno(1,2,3-cd)pyrene	36.0 - 39.0	0 / 10			1,100	/	0.035	18.7	0.017						No	HQ less than one, not detected
ophorone	36.0 - 39.0	0 / 10			NSV	/	NSV	18.7	NSV						No	No screening value, not detected

Table F-11
ERS Subsurface Soil Screen for Site 85
Camp Johnson Consutrcion Area
Focused PA/SI
MCR Camp Leieune

			Maximum				Mavimum		Moon		Maximum		Supplemental	Supplemental		
Chemical	Range of Non- Detect Values	Frequency of Detection	Concentration Detected	Sample ID of Maximum Detected Concentration	Screening Value	Frequency of Exceedance ¹	Maximum Hazard Quotient	Arithmetic Mean Concentration	Mean Hazard Quotient	2 x Mean Background	Exceeds 2 x Mean Background?	Supplemental Screening Value	Supplemental Screening Value Source	Supplemental Screening Value Hazard Quotient	Retain?	Rationale
Naphthalene	180 - 200	0 / 10			29,000	/	0.0069	94.5	0.003						No	HQ less than one, not detected
n-Nitroso-di-n-propylamine	36.0 - 39.0	0 / 10			NSV	/	NSV	18.7	NSV						No	No screening value, not detected
n-Nitrosodiphenylamine	180 - 200	0 / 10			20,000	/	0.010	94.5	0.005						No	HQ less than one, not detected
Nitrobenzene	180 - 200	0 / 10			40.000	/	0.0050	94.5	0.002						No	HQ less than one, not detected
Pentachlorophenol	180 - 200	0 / 10			2,100	/	0.095	94.5	0.045						No	HQ less than one, not detected
Phenanthrene	180 - 200	0 / 10			29,000	/	0.0069	94.5	0.003						No	HQ less than one, not detected
Phenol	180 - 200	0 / 10			50.0	/	4.00	94.5	1.89						No	Not detected
Pyrene	180 - 200	0 / 10			1,100	/	0.18	94.5	0.086						No	HQ less than one, not detected
Pesticide/Polychlorinated Biphenyls	(UG/KG)	1				I.	I	l		1	1			I.	1	-
4,4'-DDD	1.70 - 2.00	2 / 10	1.90	IR85-SB09-2-7-09C	21.0	0 / 10	0.090	1.07	0.051						No	HQ less than one, detected
																Low magnitude of exceedance, mean HC
4,4'-DDE	1.70 - 2.00	2 / 10	31.0	IR85-SB07-2-4-09C	21.0	1 / 10	1.48	4.04	0.19						No	less than one
4,4'-DDT	1.70 - 2.00	2 / 10	10.0	IR85-SB07-2-4-09C	21.0	0 / 10	0.48	1.87	0.089						No	HQ less than one, detected
Aldrin	1.70 - 2.00	0 / 10			2.50	/	0.80	0.93	0.37						No	HQ less than one, not detected
alpha-BHC	1.70 - 2.00	0 / 10			2.50	/	0.80	0.93	0.37						No	HQ less than one, not detected
alpha-Chlordane	1.70 - 2.00	0 / 10			100	/	0.020	0.93	0.009						No	HQ less than one, not detected
Aroclor-1016	17.0 - 19.0	0 / 10			20.0	/	0.95	9.00	0.45						No	HQ less than one, not detected
Aroclor-1221	17.0 - 19.0	0 / 10			20.0	/	0.95	9.00	0.45						No	HQ less than one, not detected
Aroclor-1232	17.0 - 19.0	0 / 10			20.0	/	0.95	9.00	0.45						No	HQ less than one, not detected
Aroclor-1242	17.0 - 19.0	0 / 10			20.0	/	0.95	9.00	0.45						No	HQ less than one, not detected
Aroclor-1248	17.0 - 19.0	0 / 10			20.0	/	0.95	9.00	0.45						No	HQ less than one, not detected
Aroclor-1254	17.0 - 19.0	0 / 10			20.0	/	0.95	9.00	0.45						No	HQ less than one, not detected
Aroclor-1260	17.0 - 19.0	0 / 10			20.0	/	0.95	9.00	0.45						No	HQ less than one, not detected
beta-BHC	1.70 - 2.00	0 / 10			1.00	/	2.00	0.93	0.93						No	Not detected
delta-BHC	1.70 - 2.00	1 / 10	1.10	IR85-SB13-2-7-09C	100	0 / 10	0.011	0.94	0.009						No	HQ less than one, detected
Dieldrin	1.70 - 2.00	0 / 10			4.90	/	0.41	0.93	0.19						No	HQ less than one, not detected
Endosulfan I	1.70 - 2.00	0 / 10			100	/	0.020	0.93	0.009						No	HQ less than one, not detected
Endosulfan II	1.70 - 2.00	0 / 10			100	/	0.020	0.93	0.009						No	HQ less than one, not detected
Endosulfan sulfate	1.70 - 2.00	0 / 10			100	/	0.020	0.93	0.009						No	HQ less than one, not detected
Endrin	1.70 - 2.00	0 / 10			1.00	/	2.00	0.93	0.93						No	Not detected
Endrin aldehyde	1.70 - 2.00	0 / 10			100	/	0.020	0.93	0.009						No	HQ less than one, not detected
Endrin ketone	1.70 - 2.00	0 / 10			100	/	0.020	0.93	0.009						No	HQ less than one, not detected
gamma-BHC (Lindane)	1.70 - 2.00	0 / 10			0.050	/	40.0	0.93	19						No	Not detected
gamma-Chlordane	1.70 - 2.00	1 / 10	1.90	IR85-SB13-2-7-09C	100	0 / 10	0.019	1.02	0.010						No	HQ less than one, detected
Heptachlor	1.70 - 2.00	0 / 10			100	/	0.020	0.93	0.009						No	HQ less than one, not detected
Heptachlor epoxide	1.70 - 2.00	0 / 10			100	/	0.020	0.93	0.009						No	HQ less than one, not detected
Methoxychlor	1.70 - 2.00	0 / 10			100	/	0.020	0.93	0.009						No	HQ less than one, not detected
Toxaphene	33.0 - 39.0	0 / 10			100	/	0.39	18.2	0.18						No	HQ less than one, not detected
Inorganics (MG/KG)	30.0 37.0	0 7 10	J	<u> </u>	100	'	0.07	10.2	0.10				l.		140	
Aluminum		10 / 10	12,000	IR85-SB09-2-7-09C	50.0	10 / 10	240	5,855	117	10,369	Yes				No	Within background range
Antimony	1.60 - 1.70	0 / 10			0.27	/	6.30	0.81	2.98	0.36	Yes				No	Not detected
Arsenic		10 / 10	2.30	IR85-SB07-2-4-09C	18.0	0 / 10	0.13	1.32	0.073	2.12	Yes				No	Within background range
Barium		10 / 10	16.2	IR85-SB09-2-7-09C	330	0 / 10	0.049	8.40	0.075	16.6	No				No	Consistent with background
Beryllium	0.16 - 0.17	4 / 10	0.072	IR85-SB09-2-7-09C	21.0	0 / 10	0.0034	0.065	0.023	0.17	No				No	Consistent with background
Cadmium	0.47 - 0.50	0 / 10	0.072		0.36	/	1.39	0.24	0.67	0.023					No	Not detected
Calcium ²	78.2 - 83.0	2 / 10	84.8	IR85-SB09-2-7-09C	NSV	/	NSV	42.2	NSV	441	No		 		No	Consistent with background
Chromium	76.2 - 65.0	10 / 10	12.5	IR85-SB09-2-7-09C	26.0	0 / 10	0.48	6.30	0.24	14.5	No				No	Consistent with background
Cobalt	0.39 - 0.42	4 / 10	0.72	IR85-SB09-2-7-09C	13.0	0 / 10	0.48	0.26	0.020	0.822	No				No	Consistent with background
	0.39 - 0.42	10 / 10	1.70	IR85-SB09-2-7-09C	28.0	0 / 10	0.055	1.06	0.020	2.56	+					Consistent with background
Copper											No No				No No	· ·
Iron		10 / 10	5,040	IR85-SB09-2-7-09C	200	10 / 10	25.2	3,351	17	5,439	No				No No	Consistent with background
Lead		10 / 10	7.70	IR85-SB09-2-7-09C	11.0	0 / 10	0.70	4.48	0.41	8.49	No				No	Consistent with background
Magnesium ²		10 / 10	424	IR85-SB09-2-7-09C	NSV	/	NSV	198	NSV	363	Yes				No	Macronutrient
Manganese		10 / 10	31.2	IR85-SB08-2-7-09C	220	0 / 10	0.14	9.60	0.044	9.25	Yes				No	Within background range

Table F-11 ERS Subsurface Soil Screen for Site 85 Camp Johnson Consutrcion Area Focused PA/SI MCB Camp Lejeune

Chemical	Range of Non- Detect Values		Maximum Concentration Detected	Sample ID of Maximum Detected Concentration	Screening Value	Frequency of Exceedance ¹	Maximum Hazard Quotient	Arithmetic Mean Concentration	Mean Hazard Quotient	2 x Mean Background	Maximum Exceeds 2 x Mean Background?	Supplemental Screening Value	Supplemental Screening Value Source	Supplemental Screening Value Hazard Quotient	Retain?	Rationale
																Low frequency and magnitude of exceedance, barely exceeds maximum
Mercury	0.033 - 0.037	2 / 10	0.17	IR85-SB06-2-7-09C	0.10	1 / 10	1.70	0.034	0.34	0.071	Yes				No	background value
Nickel	0.83 - 0.83	9 / 10	2.40	IR85-SB09-2-7-09C	38.0	0 / 10	0.063	1.11	0.029	2.27	Yes				No	Within background range
Potassium ²		10 / 10	306	IR85-SB09-2-7-09C	NSV	/	NSV	152	NSV	361	No				No	Consistent with background
Selenium	1.60 - 1.70	1 / 10	0.47	IR85-SB09-2-7-09C	0.52	0 / 10	0.90	0.77	1.48	0.505	No				No	Consistent with background
Silver	1.60 - 1.60	3 / 10	0.17	IR85-SB14-2-7-09C	4.20	0 / 10	0.040	0.59	0.14	0.13	Yes				No	Within background range
Sodium ²	199 - 199	9 / 10	23.1	IR85-SB09-2-7-09C	NSV	/	NSV	17.9	NSV	68	No				No	Consistent with background
Thallium	2.30 - 2.50	0 / 10			1.00	/	2.50	1.20	1.20	0.38					No	Not detected
Vanadium		10 / 10	16.4	IR85-SB09-2-7-09C	7.80	7 / 10	2.10	9.68	1.24	17.2	No				No	Consistent with background
Zinc	4.00 - 4.00	6 / 10	52.9	IR85-SB17-6-7-09C	46.0	2 / 10	1.15	16.0	0.35	6.59	Yes				No	Low magnitude of exceedance, mean HQ less than one

NOTES

1 - Count of detected samples exceeding or equaling Screening Value

2 - Macronutrient - Not considered to be a contaminant of potential concern (COPC)

HQ - Hazard Quotient

MG/KG - Milligrams per kilogram NSV - No Screening Value UG/KG - Micrograms per kilogram Generated by: Sara Kent Checked by: Kelly Taylor

Table F-12
ERS Groundwater Screen for Site 85
Camp Johnson Consultcion Area
Focused PA/SI

Chemical	Range of Non- Detect Values	Frequency of Detection	Maximum Concentration Detected	Sample ID of Maximum Detected Concentration	Screening Value ¹	Frequency of Exceedance ²	Maximum Hazard Quotient	Arithmetic Mean Concentration	Mean Hazard Quotient	2 x Mean Background	Maximum Exceeds 2 x Mean Background?	Supplemental Screening Value	Supplemental Screening Value Source	Supplemental Screening Value Maximum HQ	Retain?	Rationale
Volatile Organic Compounds (UG/L)	l		<u> </u>			<u> </u>		<u> </u>	<u> </u>	<u>I</u>	1					
1,1,1-Trichloroethane	1.00 - 1.00	0 / 9			312	/	0.0032	0.50	0.002						No	HQ less than one, not detected
1,1,2,2-Tetrachloroethane	1.00 - 2.40	0 / 9			90.2	/	0.027	0.73	0.008						No	HQ less than one, not detected
1,1,2-Trichloro-1,2,2-trifluoroethane(Freon-113)	1.00 - 1.00	0 / 9			NSV	/	NSV	0.50	NSV						No	No screening value, not detected
1,1,2-Trichloroethane	1.00 - 1.00	0 / 9			NSV	/	NSV	0.50	NSV						No	No screening value, not detected
1,1-Dichloroethane	1.00 - 1.00	0 / 9			NSV	/	NSV	0.50	NSV						No	No screening value, not detected
1,1-Dichloroethene	1.00 - 1.00	0 / 9			2,240	/	4.46E-04	0.50	2.232E-04						No	HQ less than one, not detected
,2,4-Trichlorobenzene	1.00 - 1.00	0 / 9			4.50	/	0.22	0.50	0.11						No	HQ less than one, not detected
,2-Dibromo-3-chloropropane	2.00 - 2.00	0 / 6			NSV	/	NSV	1.00	NSV						No	No screening value, not detected
,2-Dibromoethane	1.00 - 1.00	0 / 9			NSV	/	NSV	0.50	NSV						No	No screening value, not detected
I,2-Dichlorobenzene	1.00 - 1.00	0 / 9			19.7	/	0.051	0.50	0.025						No	HQ less than one, not detected
1,2-Dichloroethane	1.00 - 1.00	0 / 9			1,130	/	8.85E-04	0.50	4.425E-04						No	HQ less than one, not detected
,2-Dichloropropane	1.00 - 1.00	0 / 9			2,400	/	4.17E-04	0.50	2.083E-04						No	HQ less than one, not detected
,3-Dichlorobenzene	1.00 - 1.00	0 / 9			28.5	/	0.035	0.50	0.018						No	HQ less than one, not detected
,4-Dichlorobenzene	1.00 - 1.00	0 / 9			19.9	/	0.050	0.50	0.025						No	HQ less than one, not detected
2-Butanone	5.00 - 5.00	0 / 9			NSV	/	NSV	2.50	NSV						No	No screening value, not detected
2-Hexanone	5.00 - 5.00	0 / 9			NSV	/	NSV	2.50	NSV						No	No screening value, not detected
I-Methyl-2-pentanone	5.00 - 5.00	0 / 9			NSV	/	NSV	2.50	NSV						No	No screening value, not detected
Acetone	5.00 - 5.00	0 / 9			NSV	/	NSV	2.50	NSV						No	No screening value, not detected
Benzene	1.00 - 1.00	0 / 9			109	/	0.0092	0.50	0.005						No	HQ less than one, not detected
Bromodichloromethane	1.00 - 1.00	0 / 9			NSV	/	NSV	0.50	NSV						No	No screening value, not detected
Bromoform	1.00 - 1.00	0/9			640	/	0.0016	0.50	0.001						No	HQ less than one, not detected
	1.00 - 1.00	0 / 8			120	/	0.0010	0.52	0.001						No	HQ less than one, not detected
Bromomethane Carbon disulfide		0 / 9			NSV	/	0.0092 NSV	0.50	NSV							No screening value, not detected
	1.00 - 1.00 1.00 - 1.00	0 / 9			1,500	/	6.67E-04	0.50	3.333E-04						No	HQ less than one, not detected
Carbon tetrachloride	1.00 - 1.00	0/9			1,500	/	0.07E-04	0.50	1						No No	HQ less than one, not detected
Chlorobenzene						/		0.50	0.005							No screening value, not detected
Chloroethane	1.00 - 1.00 1.00 - 2.20	0 / 8		 IR85-MW05-09C	NSV 815	0 / 9	NSV 0.013	2.37	NSV 0.003						No	HQ less than one, detected
Chloroform			11.0												No No	HQ less than one, not detected
Chloromethane	1.00 - 1.00	0 / 9			2,700	/	3.70E-04	0.50 0.50	1.852E-04 NSV						No No	
cis-1,2-Dichloroethene	1.00 - 1.00	0 / 9			NSV	/	NSV								No	No screening value, not detected HQ less than one, not detected
cis-1,3-Dichloropropene	1.00 - 1.00	0 / 9			7.90	/	0.13	0.50	0.063						No	
Cyclohexane	1.00 - 1.00	0 / 9			NSV	/	NSV	0.50	NSV						No	No screening value, not detected
Dibromochloromethane	1.00 - 1.00	0 / 9			NSV	/	NSV	0.50	NSV						No	No screening value, not detected
Dichlorodifluoromethane (Freon-12)	1.00 - 1.00	0 / 9			NSV	/	NSV	0.50	NSV						No	Not detected, no screening value
Ethylbenzene	1.00 - 1.00	0 / 9			4.30	/	0.23	0.50	0.12						No	HQ less than one, not detected
sopropylbenzene	1.00 - 1.00	0 / 9			NSV	/	NSV	0.50	NSV						No	No screening value, not detected
Methyl acetate	1.00 - 1.00	0 / 9			NSV	/	NSV	0.50	NSV						No	No screening value, not detected
Methylcyclohexane	1.00 - 1.00	0 / 9			NSV	/	NSV	0.50	NSV						No	No screening value, not detected
Methylene chloride	1.00 - 1.00	2 / 9	190	IR85-TW06-09C	2,560	0 / 9	0.074	23.1	0.009						No	HQ less than one, detected
Methyl-tert-butyl ether (MTBE)	1.00 - 1.00	0 / 9			NSV	/	NSV	0.50	NSV						No	No screening value, not detected
Styrene	1.00 - 1.00	0 / 9			NSV	/	NSV	0.50	NSV						No	No screening value, not detected
Tetrachloroethene	1.00 - 1.10	0 / 9			45.0	/	0.024	0.52	0.012						No	HQ less than one, not detected
oluene	1.00 - 1.00	0 / 9			37.0	/	0.027	0.50	0.014						No	HQ less than one, not detected
rans-1,2-Dichloroethene	1.00 - 1.00	0 / 9			NSV	/	NSV	0.50	NSV						No	No screening value, not detected
rans-1,3-Dichloropropene	1.00 - 1.00	0 / 9			7.90	/	0.13	0.50	0.063						No	HQ less than one, not detected
richloroethene	1.00 - 5.10	0 / 9			NSV	/	NSV	1.41	NSV						No	No screening value, not detected
richlorofluoromethane(Freon-11)	1.00 - 1.00	0 / 9			NSV	/	NSV	0.50	NSV						No	No screening value, not detected
inyl chloride	1.00 - 1.00	0 / 9			NSV	/	NSV	0.50	NSV						No	No screening value, not detected
ylene, total	1.00 - 1.20	0 / 9			NSV	/	NSV	0.54	NSV						No	No screening value, not detected
emivolatile Organic Compounds (UG/L)																
1-Biphenyl	10.0 - 11.0	0 / 9			NSV	/	NSV	5.06	NSV						No	No screening value, not detected
,2'-Oxybis(1-chloropropane)	10.0 - 11.0	0 / 9			NSV	/	NSV	5.06	NSV						No	No screening value, not detected
,4,5-Trichlorophenol	10.0 - 11.0	0 / 9			NSV	/	NSV	5.06	NSV						No	No screening value, not detected
,4-Dichlorophenol	10.0 - 11.0	0 / 9			NSV	/	NSV	5.06	NSV						No	No screening value, not detected

Table F-12
ERS Groundwater Screen for Site 85
Camp Johnson Consutrcion Area
Focused PA/SI

Chemical	Range of Non- Detect Values	Frequency of Detection	Maximum Concentration Detected	Sample ID of Maximum Detected Concentration	Screening Value ¹	Frequency of Exceedance ²	Maximum Hazard Quotient	Arithmetic Mean Concentration	Mean Hazard Quotient	2 x Mean Background	Maximum Exceeds 2 x Mean Background?	Supplemental Screening Value	Supplemental Screening Value Source	Supplemental Screening Value Maximum HQ	Retain?	Rationale
2,4-Dimethylphenol	10.0 - 11.0	0 / 9			NSV	/	NSV	5.06	NSV						No	No screening value, not detected
4-Dinitrophenol	20.0 - 21.0	0 / 9			48.5	/	0.43	10.2	0.21						No	HQ less than one, not detected
4-Dinitrotoluene	10.0 - 11.0	0 / 9			NSV	/	NSV	5.06	NSV						No	No screening value, not detected
6-Dinitrotoluene	10.0 - 11.0	0 / 9			NSV	/	NSV	5.06	NSV						No	No screening value, not detected
Chloronaphthalene	10.0 - 11.0	0 / 9			NSV	/	NSV	5.06	NSV						No	No screening value, not detected
Chlorophenol	10.0 - 11.0	0 / 9			NSV	/	NSV	5.06	NSV						No	No screening value, not detected
Methylnaphthalene	10.0 - 11.0	0 / 9			NSV	/	NSV	5.06	NSV						No	No screening value, not detected
Methylphenol	10.0 - 11.0	0 / 9			NSV	/	NSV	5.06	NSV						No	No screening value, not detected
Nitroaniline	10.0 - 11.0	0 / 9			NSV	/	NSV	5.06	NSV						No	No screening value, not detected
Nitrophenol	10.0 - 11.0	0 / 9			NSV	/	NSV	5.06	NSV						No	No screening value, not detected
3'-Dichlorobenzidine	20.0 - 21.0	0 / 9			NSV	/	NSV	10.2	NSV						No	No screening value, not detected
Vitroaniline	10.0 - 11.0	0/9			NSV	/	NSV	5.06	NSV						No	No screening value, not detected
5-Dinitro-2-methylphenol	20.0 - 21.0	0 / 9			NSV	/	NSV	10.2	NSV						No	No screening value, not detected
Bromophenyl-phenylether	10.0 - 11.0	0 / 9			NSV	/	NSV	5.06	NSV						No	No screening value, not detected
Chloro-3-methylphenol	10.0 - 11.0	0 / 9			NSV	/	NSV	5.06	NSV						No	No screening value, not detected
Chloroaniline	10.0 - 11.0	0 / 9			NSV	/	NSV	5.06	NSV						No	No screening value, not detected
	10.0 - 11.0	0 / 9			NSV	/	NSV	5.06	NSV						-	No screening value, not detected
Chlorophenyl-phenylether															No	<u> </u>
Methylphenol	20.0 - 21.0	0 / 9			NSV	/	NSV	10.2	NSV						No	No screening value, not detected
Vitroaniline	10.0 - 11.0	0 / 9			NSV	/	NSV	5.06	NSV						No	No screening value, not detected
Nitrophenol	20.0 - 21.0	0 / 9			71.7	/	0.29	10.2	0.14						No	HQ less than one, not detected
enaphthene	10.0 - 11.0	0 / 9			9.70	/	1.13	5.06	0.52						No	Not detected
enaphthylene	10.0 - 11.0	0 / 9			NSV	/	NSV	5.06	NSV						No	No screening value, not detected
etophenone	10.0 - 11.0	0 / 9			NSV	/	NSV	5.06	NSV						No	No screening value, not detected
thracene	10.0 - 11.0	0 / 9			NSV	/	NSV	5.06	NSV						No	No screening value, not detected
razine	20.0 - 21.0	0 / 9			NSV	/	NSV	10.2	NSV						No	No screening value, not detected
enzaldehyde	10.0 - 10.0	0 / 4			NSV	/	NSV	5.00	NSV						No	No screening value, not detected
enzo(a)anthracene	10.0 - 11.0	0 / 9			NSV	/	NSV	5.06	NSV						No	No screening value, not detected
enzo(a)pyrene	10.0 - 11.0	0 / 9			NSV	/	NSV	5.06	NSV						No	No screening value, not detected
enzo(b)fluoranthene	10.0 - 11.0	0 / 9			NSV	/	NSV	5.06	NSV						No	No screening value, not detected
enzo(g,h,i)perylene	10.0 - 11.0	0 / 9			NSV	/	NSV	5.06	NSV						No	No screening value, not detected
enzo(k)fluoranthene	10.0 - 11.0	0 / 9			NSV	/	NSV	5.06	NSV						No	No screening value, not detected
s(2-Chloroethoxy)methane	10.0 - 11.0	0 / 9			NSV	/	NSV	5.06	NSV						No	No screening value, not detected
s(2-Chloroethyl)ether	10.0 - 11.0	0 / 9			NSV	/	NSV	5.06	NSV						No	No screening value, not detected
(2-Ethylhexyl)phthalate	10.0 - 11.0	0 / 9			NSV	/	NSV	5.06	NSV						No	No screening value, not detected
ıtylbenzylphthalate	10.0 - 11.0	0 / 9			29.4	/	0.37	5.06	0.17						No	Not detected, HQ less than one
aprolactam	10.0 - 11.0	0 / 9			NSV	/	NSV	5.06	NSV						No	No screening value, not detected
arbazole	10.0 - 11.0	0 / 9			NSV	/	NSV	5.06	NSV						No	No screening value, not detected
nrysene	10.0 - 11.0	0 / 9			NSV	/	NSV	5.06	NSV						No	No screening value, not detected
benz(a,h)anthracene	10.0 - 11.0	0 / 9			NSV	/	NSV	5.06	NSV						No	No screening value, not detected
benzofuran	10.0 - 11.0	0 / 9			NSV	/	NSV	5.06	NSV						No	No screening value, not detected
ethylphthalate	10.0 - 11.0	0 / 9			759	/	0.014	5.06	0.007						No	HQ less than one, not detected
methyl phthalate	10.0 - 11.0	0 / 9			580	/	0.019	5.06	0.009						No	HQ less than one, not detected
-n-butylphthalate	20.0 - 21.0	0/9			3.40	/	6.18	10.2	2.99						No	Not detected
-n-octylphthalate	10.0 - 11.0	0 / 9			NSV	/	NSV	5.06	NSV						No	No screening value, not detected
uoranthene	10.0 - 11.0	0 / 9			1.60	/	6.88	5.06	3.16						No	Not detected
	10.0 - 11.0	0 / 9			NSV	/	NSV	5.06	NSV							No screening value, not detected
Jorene															No	No screening value, not detected
exachlorobenzene	10.0 - 11.0	0 / 9			NSV	/	NSV	5.06	NSV						No	Ů .
exachlorobutadiene	10.0 - 11.0	0 / 9			0.32	/	34.4	5.06	16						No	Not detected
exachlorocyclopentadiene	10.0 - 11.0	0 / 9			0.070	/	157	5.06	72						No	Not detected
exachloroethane	10.0 - 11.0	0 / 9			9.40	/	1.17	5.06	0.54						No	Not detected
leno(1,2,3-cd)pyrene	10.0 - 11.0	0 / 9			NSV	/	NSV	5.06	NSV						No	No screening value, not detected
phorone	10.0 - 11.0	0 / 9			129	/	0.085	5.06	0.039						No	HQ less than one, not detected
phthalene	10.0 - 11.0	0 / 9			23.5	/	0.47	5.06	0.22						No	HQ less than one, not detected
Nitroso-di-n-propylamine	10.0 - 11.0	0 / 9			NSV	/	NSV	5.06	NSV						No	No screening value, not detected

Table F-12
ERS Groundwater Screen for Site 85
Camp Johnson Consutrcion Area
Focused PA/SI

MCB Camp Lejeune, North Carolina	<u> </u>		1		1	1	1	1	,	1	1		T			
Chemical	Range of Non- Detect Values	Frequency of Detection	Maximum Concentration Detected	Sample ID of Maximum Detected Concentration	Screening Value ¹	Frequency of Exceedance ²	Maximum Hazard Quotient	Arithmetic Mean Concentration	Mean Hazard Quotient	2 x Mean Background	Maximum Exceeds 2 x Mean Background?	Supplemental Screening Value	Supplemental Screening Value Source	Supplemental Screening Value Maximum HQ	Retain?	Rationale
n-Nitrosodiphenylamine	10.0 - 11.0	0 / 9			33,000	/	3.33E-04	5.06	1.532E-04						No	HQ less than one, not detected
Nitrobenzene	10.0 - 11.0	0 / 9			30.0	/	0.37	5.06	0.17						No	HQ less than one, not detected
Pentachlorophenol	20.0 - 21.0	0 / 9			7.90	/	2.66	10.2	1.29						No	Not detected
Phenanthrene	10.0 - 11.0	0 / 9			NSV	/	NSV	5.06	NSV						No	No screening value, not detected
Phenol	10.0 - 11.0	0 / 9			58.0	/	0.19	5.06	0.087						No	HQ less than one, not detected
Pyrene	10.0 - 11.0	0 / 9			NSV	/	NSV	5.06	NSV						No	No screening value, not detected
Pesticide/Polychlorinated Biphenyls (UC		0 1 7			1434	/	IVSV	5.00	IVSV						INU	The server mig value, for detected
resticide/rolychlormated diphenyis (oc	5/L)															Law magnitude of everedance and frequency of
4,4'-DDD	0.050 - 0.078	1 / 9	0.079	IR85-TW06-09C	0.025	1 / 9	3.16	0.033	1.31						No	Low magnitude of exceedance and frequency of detection
4,4'-DDE	0.050 - 0.078	0 / 9	0.077		0.023	/	0.56	0.033	0.19						No	HQ less than one, not detected
4,4'-DDE 4,4'-DDT	0.050 - 0.078	0/9			0.0010	/	78.0	0.027	27						No	Not detected
Aldrin	0.050 - 0.078	0/9			0.0010		0.60	0.027	0.21							HQ less than one, not detected
						/									No	HQ less than one, not detected
alpha-BHC	0.050 - 0.078	0 / 9			1,400	/	5.57E-05	0.027	1.909E-05						No	· ·
alpha-Chlordane	0.050 - 0.078	0 / 9			0.0040	/	19.5	0.027	6.68						No	Not detected
Aroclor-1016	0.50 - 0.78	0 / 9			0.030	/	26.0	0.27	8.94						No	Not detected
Aroclor-1221	0.50 - 0.78	0 / 9			0.030	/	26.0	0.27	8.94						No	Not detected
Aroclor-1232	0.50 - 0.78	0 / 9			0.030	/	26.0	0.27	8.94						No	Not detected
Aroclor-1242	0.50 - 0.78	0 / 9			0.030	/	26.0	0.27	8.94						No	Not detected
Aroclor-1248	0.50 - 0.78	0 / 9			0.030	/	26.0	0.27	8.94						No	Not detected
Aroclor-1254	0.50 - 0.78	0 / 9			0.030	/	26.0	0.27	8.94						No	Not detected
Aroclor-1260	0.50 - 0.78	0 / 9			0.030	/	26.0	0.27	8.94						No	Not detected
beta-BHC	0.050 - 0.078	0 / 9			NSV	/	NSV	0.027	NSV						No	No screening value, not detected
delta-BHC	0.050 - 0.078	0 / 9			NSV	/	NSV	0.027	NSV						No	No screening value, not detected
Dieldrin	0.050 - 0.078	0 / 9			0.0019	/	41.1	0.027	14						No	Not detected
Endosulfan I	0.050 - 0.078	0 / 9			0.0087	/	8.97	0.027	3.07						No	Not detected
Endosulfan II	0.050 - 0.078	0 / 9			0.0087	/	8.97	0.027	3.07						No	Not detected
Endosulfan sulfate	0.050 - 0.078	0 / 9			NSV	/	NSV	0.027	NSV						No	No screening value, not detected
Endrin	0.050 - 0.078	0 / 9			0.0023	/	33.9	0.027	12						No	Not detected
Endrin aldehyde	0.050 - 0.078	0 / 9			NSV	/	NSV	0.027	NSV						No	No screening value, not detected
Endrin ketone	0.050 - 0.078	0 / 9			NSV	/	NSV	0.027	NSV						No	No screening value, not detected
gamma-BHC (Lindane)	0.050 - 0.078	0 / 9			0.016	/	4.88	0.027	1.67						No	Not detected
gamma-Chlordane	0.050 - 0.078	0 / 9			0.0040	/	19.5	0.027	6.68						No	Not detected
Heptachlor	0.050 - 0.078	0 / 9			0.0036	/	21.7	0.027	7.42						No	Not detected
Heptachlor epoxide	0.050 - 0.078	0 / 9			0.0036	/	21.7	0.027	7.42						No	Not detected
Methoxychlor	0.050 - 0.078	0 / 9			0.030	/	2.60	0.027	0.89						No	Not detected
Toxaphene	1.00 - 1.60	0 / 9			0.0020	/	800	0.53	267						No	Not detected
Inorganics (UG/L)	1.00 - 1.00	0 7 7			0.0020	/	000	0.55	207						INO	
morganics (OO/L)		1				1										1
Aluminum		9 / 9	15,100	IR85-TW06-09C	NSV	/	NSV	2,054	NSV	1886	Yes				No	Dissolved data are consistent with background
Antimony	20.0 - 40.0	0/9	15,100		160	/	0.25	11.1	0.069	3.28					No	HQ less than one, not detected
	20.0 - 40.0			 IR85-MW02-09C		0 / 9		9.11		5.77						Consistent with background
Arsenic		1 / 9	2.00	_	36.0	1	0.056		0.25		No				No No	Consistent with background
Barium	50.0 - 50.0	5 / 9	56.9	IR85-MW02-09C	NSV	/	NSV	33.2	NSV	86.2	No				No	-
Beryllium	2.00 - 2.00	5 / 9	0.27	IR85-MW02-09C	NSV	/	NSV	0.53	NSV	0.308	No				No	Consistent with background
Cadmium	6.00 - 6.00	3 / 9	0.28	IR85-TW08-09C	8.80	0 / 9	0.032	2.06	0.23	0.358	No					Consistent with background
Calcium ³		9 / 9	3,190	IR85-TW06-09C	NSV	/	NSV	1,444	NSV	69078	No					Consistent with background
Chromium	20.0 - 20.0	2 / 9	18.9	IR85-TW06-09C	50.0	0 / 9	0.38	10.1	0.20	3.13	Yes					Within background range
Cobalt	5.00 - 5.00	5 / 9	1.20	IR85-TW05-09C	NSV	/	NSV	1.58	NSV	3.4	No				No	Consistent with background
]]						_	
Copper	20.0 - 40.0	5 / 9	6.80	IR85-TW06-09C	3.10	3 / 9	2.19	7.92	2.56	2.76	Yes				No	Consistent with background in subsurface soils
Iron		9 / 9	6,900	IR85-TW06-09C	NSV	/	NSV	2,016	NSV	5999	Yes				No	Within background range
Lead	20.0 - 40.0	3 / 9	15.9	IR85-TW06-09C	8.10	1 / 9	1.96	10.2	1.26	2.8	Yes				No	Consistent with background in subsurface soils
Magnesium ³		9 / 9	2,510	IR85-TW05-09C	NSV	/	NSV	1,503	NSV	6363	No					Consistent with background
Manganese		9 / 9	72.5	IR85-TW05-09C	NSV	/	NSV	28.7	NSV	214	No					Consistent with background
manganese		7 1 7	12.0	11700-1 0000-090	INOV	/	INOV	20.1	IVOV	Z 14	INU				INU	OSTOROGE WILL BUONGFOUND

ERS Groundwater Screen for Site 85 Camp Johnson Consutrcion Area Focused PA/SI

MCB Camp Lejeune, North Carolina

Chemical	Range of Non- Detect Values	Frequency of Detection	Maximum Concentration Detected	Sample ID of Maximum Detected Concentration	Screening Value ¹	Frequency of Exceedance ²	Maximum Hazard Quotient	Arithmetic Mean Concentration	Mean Hazard Quotient	2 x Mean Background	Maximum Exceeds 2 x Mean Background?	Supplemental Screening Value	Supplemental Screening Value Source	Supplemental Screening Value Maximum HQ	Retain?	Rationale
Mercury	0.20 - 0.20	2 / 9	0.085	IR85-MW02-09C	0.94	0 / 9	0.090	0.091	0.097	0.1	No				No	Consistent with background
Nickel	10.0 - 10.0	7 / 9	19.7	IR85-TW05-09C	8.20	2 / 9	2.40	6.11	0.75	7.97	Yes				No	Within background range in subsurface soils
Potassium ³		9 / 9	2,180	IR85-MW02-09C	NSV	/	NSV	873	NSV	3277	No				No	Consistent with background
Selenium	20.0 - 20.0	1 / 9	4.30	IR85-TW05-09C	71.0	0 / 9	0.061	9.37	0.13	3.14	Yes				No	Consistent with background in subsurface soils
Silver	20.0 - 20.0	1 / 9	1.50	IR85-TW04-09C	0.23	1 / 9	6.52	9.06	39	0.77	Yes				No	Within background range in subsurface soils
Sodium ³		9 / 9	26,800	IR85-TW06-09C	NSV	/	NSV	9,110	NSV	22508	Yes				No	Macronutrient
Thallium	30.0 - 30.0	0 / 9			21.3	/	1.41	15.0	0.70	3.78					No	Not detected
Vanadium	50.0 - 100	0 / 9			NSV	/	NSV	27.8	NSV	4.72					No	No screening value, not detected
Zinc	50.0 - 50.0	7 / 9	110	IR85-TW08-09C	81.0	1 / 9	1.36	31.8	0.39	42.1	Yes				No	Within background range
Dissolved Inorganics (UG/L)	•															•
Aluminum, Dissolved	1,000 - 1,000	3 / 5	106	IR85-TW07-09C	NSV	/	NSV	248	NSV	1886	No				No	Consistent with background
Antimony, Dissolved	20.0 - 20.0	0 / 5			160	/	0.13	10.0	0.063	3.28					No	HQ less than one, not detected
Arsenic, Dissolved	20.0 - 20.0	0 / 5			36.0	/	0.56	10.0	0.28	5.77					No	HQ less than one, not detected
Barium, Dissolved	50.0 - 50.0	2 / 5	41.5	IR85-TW05-09C	NSV	/	NSV	28.0	NSV	86.2	No				No	Consistent with background
Beryllium, Dissolved	2.00 - 2.00	1 / 5	0.13	IR85-TW05-09C	NSV	/	NSV	0.83	NSV	0.308	No				No	Consistent with background
Cadmium, Dissolved	6.00 - 6.00	0 / 5			8.80	/	0.68	3.00	0.34	0.358					No	HQ less than one, not detected
Calcium, Dissolved 3	1,000 - 1,000	3 / 5	2,130	IR85-TW07-09C	NSV	/	NSV	971	NSV	69078	No				No	Consistent with background
Chromium, Dissolved	20.0 - 20.0	1 / 5	1.40	IR85-TW07-09C	50.0	0 / 5	0.028	8.28	0.17	3.13	No				No	Consistent with background
Cobalt, Dissolved	5.00 - 5.00	3 / 5	1.10	IR85-TW05-09C	NSV	/	NSV	1.54	NSV	3.4	No				No	Consistent with background
Copper, Dissolved	20.0 - 20.0	3 / 5	5.20	IR85-TW07-09C	3.10	1 / 5	1.68	6.00	1.94	2.76	Yes				No	Consistent with background in subsurface soils
Iron, Dissolved	150 - 150	4 / 5	6,090	IR85-TW05-09C	NSV	/	NSV	1,558	NSV	5999	Yes				No	Within background range
Lead, Dissolved	20.0 - 20.0	0 / 5			8.10	/	2.47	10.0	1.23	2.8					No	Not detected
Magnesium, Dissolved ³	250 - 250	4 / 5	2,460	IR85-TW05-09C	NSV	/	NSV	936	NSV	6363	No				No	Consistent with background
Manganese, Dissolved		5 / 5	70.1	IR85-TW05-09C	NSV	/	NSV	25.1	NSV	214	No				No	Consistent with background
Mercury, Dissolved	0.20 - 0.20	1 / 5	0.040	IR85-TW07-09C	0.94	0 / 5	0.043	0.088	0.094	0.1	No				No	Consistent with background
Nickel, Dissolved	10.0 - 10.0	3 / 5	19.5	IR85-TW05-09C	8.20	2 / 5	2.38	8.08	0.99	7.97	Yes				No	Within background range in subsurface soils
Potassium, Dissolved ³		5 / 5	852	IR85-TW05-09C	NSV	/	NSV	646	NSV	3277	No				No	Consistent with background
Selenium, Dissolved	20.0 - 20.0	1 / 5	4.30	IR85-TW05-09C	71.0	0 / 5	0.061	8.86	0.12	3.14	Yes				No	HQ less than one, detected
Silver, Dissolved	20.0 - 20.0	0 / 5			0.23	/	87.0	10.0	43	0.77					No	Not detected
Sodium, Dissolved 3		5 / 5	27,300	IR85-TW06-09C	NSV	/	NSV	10,256	NSV	22508	Yes				No	Macronutrient
Thallium, Dissolved	30.0 - 30.0	0 / 5			21.3	/	1.41	15.0	0.70	3.78					No	Not detected
Vanadium, Dissolved	50.0 - 50.0	0 / 5			NSV	/	NSV	25.0	NSV	4.72					No	Not detected
Zinc, Dissolved	50.0 - 50.0	4 / 5	49.5	IR85-TW08-09C	81.0	0 / 5	0.61	25.3	0.31	42.1	Yes				No	Within background range

NOTES

- 1 Marine screening values
- 2 Count of detected samples exceeding or equaling Screening Value
- 3 Macronutrient Not considered to be a contaminant of potential concern (COPC)
- HQ Hazard Quotient
- NSV No Screening Value
- UG/L Micrograms per liter Generated by: Sara Kent